

COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

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Small Sizes of Anthracite

CONTINUED increase in the use of bituminous slack and its steady relative advance in price as compared with lump and nut sizes shows what may be expected when fine sizes of anthracite are properly cleaned and when the public generally is instructed in the advantages of using them.

In the article which we publish today by William Strain entitled "Concentrating Tables Turn Incombustible Sludge from Pond Into Good Fuel" he declares that each coal-washing table cleans eight tons of sludge per hour, which is sixty-four tons per eight-hour day and 252 tons each twenty-four hours. This is a large production, and some there are who question whether it can be attained with anthracite, where the coal and its impurities are of much the same specific gravity, especially if care is taken to get a product of the best quality.

If, however, this purity is attained there is no doubt that the sale of small sizes will be stimulated. As about twenty tables can be tended by one man and can be run with little power it does not seem that there is any reason why good results could not be attained at reasonable cost. A big run for a breaker for sizes below pea would be 1,600 tons per day. Estimating only four tons of coal per hour per table, the services of only fifty tables would be required. This is not so many as to suggest a departure from the practice of running such machinery eight hours in the day.

Big copper mills have two or three hundred tables in operation. In some of these all the ore brought out of the mines passes over the tables; at others flotation is first provided and only flotation tailings are tabled. In breaker concentrators only a small percentage of the coal would go to the tables. The largest sizes of coal would be washed in jigs, as in the past, so the tabling operations in breakers will never be as large as those in copper plants.

The extremely fine coal could be profitably used for powdered fuel. Anthracite is especially suited for such uses, as it does not explode. Much trouble has been experienced from the spontaneous combustion of bituminous coal when reduced to powder. With anthracite risk of explosions in the mill and in the storage would be non-existent.

It seems remarkable that the anthracite companies have not done more to promote the use of buckwheat No. 1 in domestic furnaces. With the proper equipment it can be so burned, and the results are fully as good as those obtained with larger sizes of coal. If more were burning this smaller size it would in large measure tend to moderate the price of the larger sizes, which has to be increased to compensate for the low prices at which smaller sizes have to be sold. Investigation and experiment might develop that clean rice or even barley is not too small for use in properly-constructed domestic furnaces.

An engineer reports having seen last winter an installation in an apartment house in Lancaster, Pa., which was burning screenings from a local yard, apparently about the size of No. 3 buckwheat and smaller. This coal was being successfully burned on a perforated grate, low blast being supplied by a small fan operated by electric motor under thermostatic control. The inertia of the domestic consumer is one of the chief causes for the high price of "domestic" sizes and the low rate for fine coal. The sale of the fine sizes can be increased through wholesale education of the public by the anthracite companies.

Hoover and the Coal Industry

SECRETARY HOOVER is making it plain that he would aid industry, not regulate it. The Department of Justice may continue to hunt out the culprits and the Federal Trade Commission and Interstate Commerce Commission haul up short those who transgress with unfair practice, but the Department of Commerce will render aid. Aid not only that industry can increase profits, but aid in making business better for itself and for the people of the country. Extension of trade abroad is one of the big features of his program, but the "domestic" in the Bureau of Foreign and Domestic Commerce is not to be overlooked.

The steps Mr. Hoover will take to aid the coal industry are matters of interest to us. Possibly a move will be made to collect under the Commerce Department all work of the federal government having to do with fact finding, work now scattered between the Geological Survey and the Bureau of Mines in the Interior Department, the Interstate Commerce Commission, Tariff Commission, the Bureau of Labor Statistics of the Department of Labor and sundry others, including parts of the present Department of Commerce. It is difficult to foresee how the Department of Commerce can become a factor in the coal industry unless some such realignment of work is effected. It is not at all impossible that some part of the changes indicated above will result from the proposed reorganization of the government bureaus, now under consideration by Congress in the form of the McCormick Reorganization bill.

But however the job be done, Mr. Hoover is going to find necessary the rejuvenation of his own department, and for this he will need and deserves the support of Congress, more money, and the backing of the coal and other business men of the country. The men of the coal industry should take particular interest in what Mr. Hoover is planning to do in their aid and assist him by taking their troubles to him. As a business man and an engineer he cannot have other than sympathetic understanding of the coal man's problems, and what the coal industry needs above all else now is help from high places. A revised "Statement of Facts" might well be put before the new Secretary of Commerce with the

expressed desire that he aid in the rehabilitation of public confidence in the coal industry.

In this issue we publish the address of Secretary Hoover recently made to the American Engineering Council at Philadelphia. The closing paragraph of his talk is so clearly a statement of platform that we repeat it here for emphasis. An industry in this country that cannot see its way clear to get behind such a program is lacking in vision. In the course of his address Mr. Hoover said:

"We want no paternalism in government. We do need in government aids to business in a collective sense. In a department we do not want either to engage in business or to regulate business. We need a department that can give prompt and accurate diagnosis from both a foreign and domestic point of view of economic events, of economic tendencies, of economic ills; that can promptly and accurately survey economic opportunity, economic discrimination and opposition; that can give scientific advice and assistance and stability to industry in furnishing it with prompt and accurate data upon production, supplies and consumption; that can co-operate with it in finding standards and simplifications; that can by broad study promote national conservation in industry and the elimination of waste; that can study and ventilate the commercial side of our power possibilities; that can study and advise national policies in development of rail, water and overseas transportation; that in fact covers, so far as government functions can cover, the broad commercial problems of trade, industry and transportation. This can be accomplished more by co-ordination of existing governmental facilities than by increased expenditures."

Are Association Price Reports Good or Bad?

ATTENTION in a national way has been drawn to the so-called "open-price" reports of associations of business men, by the reference to them in the President's message to the Congress and by the report of the Federal Trade Commission, subsequently made public. First let us say that the statement of the Trade Commission, which has been widely printed in the newspapers, is a sound document as an interpretation of general business conditions. It must not be considered as addressed to coal alone, and many of the statements made do not apply with truth to this industry.

One of the principal causes of delay in the return of normal market and price conditions is stated to be "open-price associations, in many cases not yet challenged by the law, yet tending to bring about and maintain unduly high prices." So far as we are aware there are no such reports now being assembled in the coal trade—such as there were in 1919, which were abandoned at the veiled suggestion of the Department of Justice early in 1920, when the hardwood lumber case first came to light. It cannot be charged, therefore, that any such agency is influencing the prices of coal.

The coal industry, however, believes in this type of association activity and it is not unprofitable to inquire into the trend of opinion with regard thereto. In an interview given out last week in New York, Samuel Untermyer assailed "open-competition" associations, saying that whoever gave "the President any such foolish advice [that these associations are within the law] has done incalculable harm." He charges that such activities are "neither more nor less than covert

price-fixing agreements, and are none too subtle at that." He recognizes that the idea back of the scheme is that competitors by daily exchanges among themselves of information in regard to contracts, costs, sales prices and the like are saved the temptation of "cutting under" one another and says that the "endless arguments and pretexts that are used to justify the various devices thus employed are infantile in their simplicity and deceive no one. . . . They furnish no useful or legitimate purpose and they are a cover for all forms of interference with the economic laws of supply and demand."

Beyond question Mr. Untermyer, in his investigations of the building industry in New York, came in contact with such associations in their worst form. We appreciate that he has found in those trades sufficient to arouse him to strong language, but we believe that Mr. Harding has been better advised as to the legality of this type of association effort than Mr. Untermyer appreciates. Specifically it is the abuse of the plan that is to be condemned and not the plan itself. It is such abuse that has brought this plan of business aid into disrepute, and if the liability to misuse is inherent in the working of the scheme, then in the public interest it must go. Business wants no regulation and the public wants no combination in restraint of trade. Modification of the Sherman law, when it comes, will take the form of permitting regulated combination in aid of business.

If "open-price" reporting is to survive it must take on more of the spirit of public information. There is no denying that the incentive to the coal operator to participate in such association activities is solely that of assisting in increasing profits. Reasonable profits to industry and good trade practices are not incompatible with public interest. In the bituminous coal industry, where the trade associations have been developed, the problem in the past has been to obtain from large industrial and public utility buyers of coal, prices that afforded proper remuneration on capital invested. Trade associations in coal have been in defense of the producer as against the combinations of large coal-buying interests. Where, as in Colorado, commercial coal is largely sold for domestic use, the producers have wisely refrained at all times from reporting prices to a common agent.

Where the coal operators' trade associations have erred in the past has been in holding too closely from public view the figures of costs, contracts and sales realizations they have collected. It is pointed out that the reports of stock market transactions are "open-price" information, that the grain industry enjoys the privilege of knowing what is going on as regards transactions and prices, but it must be observed that every transaction is recorded and made public. The public enjoys the data as well as the operator. It has not been so in the past with regard to the reports of the coal associations. There was a semblance of publicity given the market reports of coal in 1919 by publication of certain totals in the "Digest" of the National Coal Association, but access to the mass of data collected by local operators' associations has been as a closed book to the consumer and the public in general. To meet the public conception of what is fair, better provision must be made for any future efforts by the coal industry along this line to inspire the public with a greater degree of confidence that something is not being done to "rig" the price against it.

Concentrating Tables Turn Incombustible Sludge from Pond Into Good Fuel

Elevator and a Sluice Broke Up Lumps of Clay and Coal Enabling Concentrating Tables to Remove Two-Thirds of the Ash, Thus Making a Good Fuel Out of Material Which Others Had Condemned and Sought to Remove by Firing

BY WILLIAM STRAIN
Renton, Wash.

FOR nearly twenty years the Renton Coal Co. has been sluicing all coal of the size commonly known as buckwheat into a field some 300 ft. from the tipple. This field has an area of about six acres. The sludge pond, as it is called, attained a height of 30 ft. and contained, in round numbers by the time it was decided to utilize it, 200,000 tons of material. The small material thus stored was a good grade of sub-bituminous coal but it contained much fine sand, particles of bone, shale and, in places, sediment consisting chiefly of clay. All this made the material difficult to burn under ordinary conditions because of its high ash content and consequent low heating value.

It has been common practice at some mines producing this grade of fine coal to allow it to be carried off in water discharged from the screens or jigs. This would undoubtedly have been done in this instance also if the turning of this material into the streams had not threatened serious damage to a large area of valuable farming land in the vicinity of the mine.

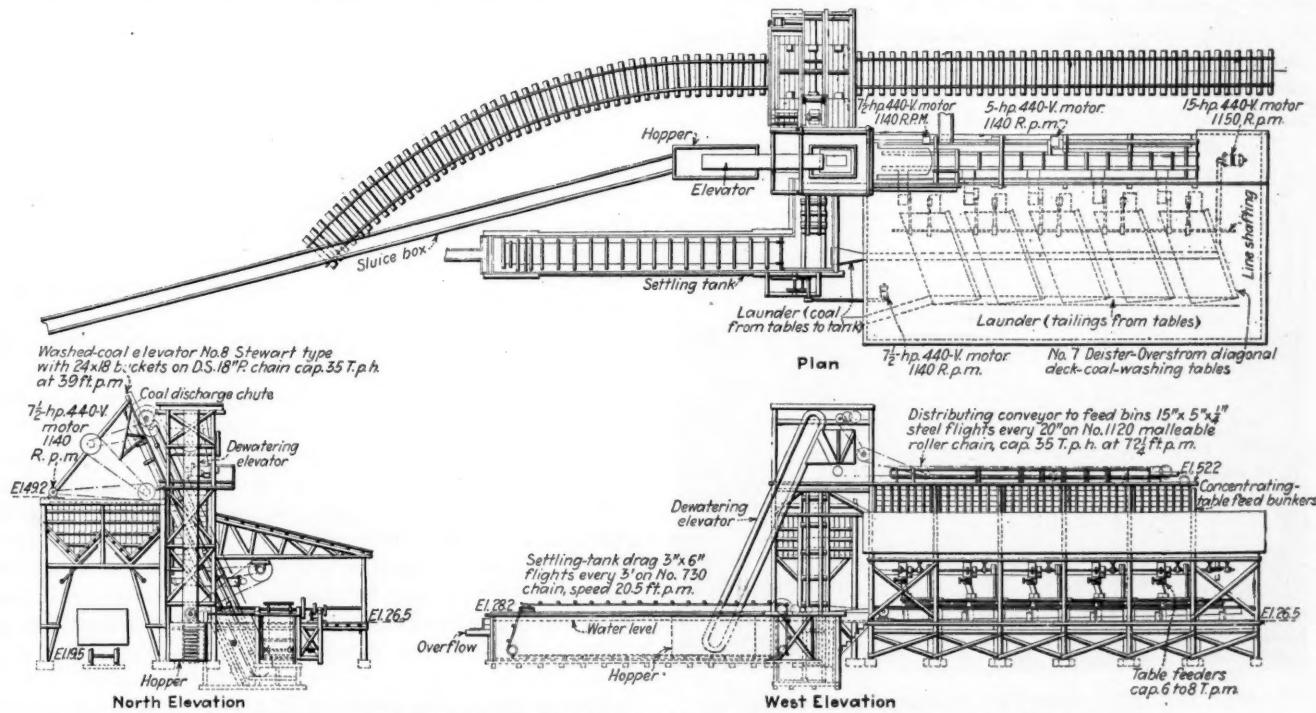
Recently, during the work of reclamation, a 30-ft. length of smokestack was unearthed. Inquiries among the "old timers" elicited the information that an at-

tempt had been made to burn the pile a few years ago. A short tunnel had been driven into the dry end of the "pond" and raised through to the surface. The exhumed section of smokestack had been carefully mounted in this raise in order to increase the draft. The tunnel had been filled with oil barrels and dried wood. Upon igniting, however, the wood failed to set fire to the coal, for which we now are duly thankful.

Upon the failure of this scheme it was necessary to install a small centrifugal pump to elevate the sludge, for the pond, by that time, had reached a point where sluicing was no longer possible. It probably was to obviate this expense that the burning was attempted.

The Puget Sound Power & Light Co., of which the Renton Coal Co. is a subsidiary, has through much effort and expense been able to develop a highly efficient powdered-fuel plant in Seattle. This plant generates steam which heats the greater part of the downtown business district during the winter months. It consumes more than two hundred tons of powdered coal per day.

It was to supply fuel for this plant that consideration was given to the preparation of the coal contained in the Renton Coal Co.'s sludge pond. An attempt was

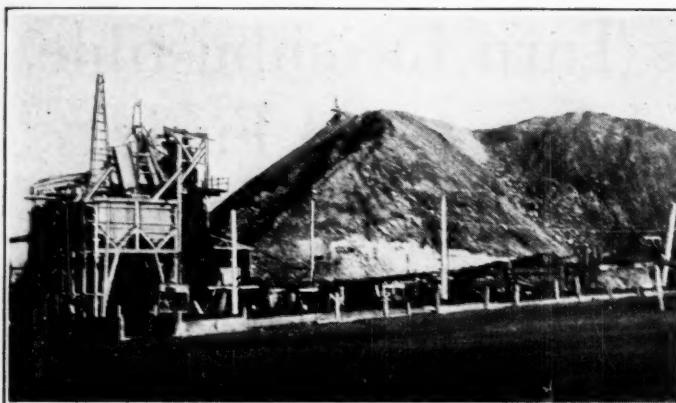


SMALL PLANT TO PREPARE 200,000 TONS OF SLUDGE FOR THE MARKET

No appreciable amount of the coal is over $\frac{1}{2}$ -in. diameter and consequently the concentrating table is well suited to the work of preparation. The installation is not

elaborate, for with 250 tons of clean coal delivered every eight hours the pond can be worked over in about eighteen months. The tables will then be available for the

preparation of the product from the washer which will comprise not only the fine coal resulting from the preparation but the crushed refuse from jigs and picking tables.



RECLAIMING PLANT FROM SLUDGE POND

The smooth surface in the foreground of the illustration, which looks like an asphalted area, is the sludge pond. Note the scaffold for the aerial tram above the washer. This is no longer used, as flushing is found to assist in preparing the material for treatment.

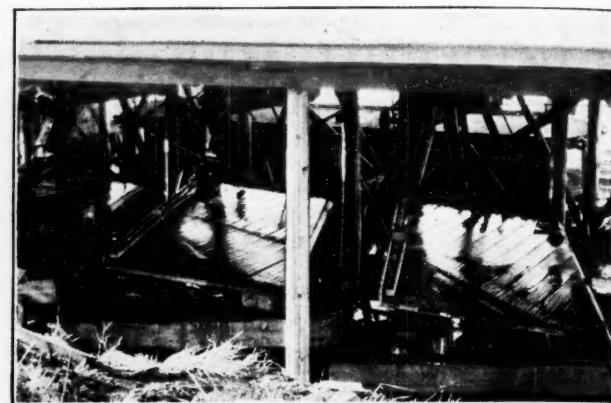
made to burn the raw sludge under boilers, but this was unsuccessful because of the high percentage of incombustible and the gummy nature of the material.

Upon examination the following conditions were found to exist in the pond. At the end where the sluice box from the tipple had discharged, the sand and larger pieces of bone and shale had settled. From this point toward the discharge or overflow end of the pond the material had been deposited according to its various sizes and specific gravities.

At the overflow end some 30,000 tons of sticky mud consisting of fine coal and finely divided clay was found. In this mud were interstratified streaks of clean coal from $\frac{1}{8}$ in. downward in diameter. These had been carried over to this point by heavy rains or sudden inrushes of water.

Tests on composite samples of the sludge, excluding, of course, the mud, were made on various kinds of coal-cleaning equipment, and it was soon found that maximum recovery was yielded by concentrating tables. Preference in installation was shown to the Deister-Overstrom coal-washing table, and five of these machines were installed, having a combined capacity of approximately forty tons per hour.

The tables were placed on a level with the main floor of the washing plant. They stand upon concrete col-



CONCENTRATING TABLES FOR CLEANING SLUDGE

These tables have no difficulty in removing fine sand, clay and bone from the coal. The ash may be reduced to one-third of its proportion, as received, and yet no coal values of importance will be lost in making this preparation.

umns reaching through the floor to the ground. Each table is belted to a line shaft which runs the entire length of the building, and power is furnished by a 15-hp. motor. This line shaft also drives five screw feeders, one leading to each table. These conveyors insure a uniform feed to each machine. Such regularity in the feed is highly essential for the efficient recovery of good coal. Above each screw feeder is a bin of one table-hour capacity. These bins are in turn fed by a distributing drag conveyor extending the length of the plant.

It was at first thought that the most efficient way of handling the sludge from the pond to the plant would be by means of an aerial tramway delivering through a rotary screen. Accordingly a short span of track cable was erected. It was found, however, that any kind of grab bucket would deliver the mud and clay to the plant in such condition that it would clog the feeding mechanism and cause large pieces of clay containing much fine coal to be discharged over the screen as refuse. Also the smaller pieces of mud and clay which passed through the screen ($\frac{1}{8}$ -in. mesh) would interfere with the separating effect of the table riffles.

REFUSE IS "DISSOLVED" AND SLUICED

By experiment it was found that the only shape in which the material could be presented to the tables for efficient treatment was by breaking it up—"dissolving," so to speak—and sluicing it by water under pressure. This sluicing plan was adopted and has proved highly satisfactory. An additional advantage possessed by it is that the water, by passing over the entire pond, delivers coal, bone, shale and fine-divided clay to the tables in uniform proportions, thus obviating the necessity for closely watching these machines once they are set.

Part of the pile lies some 20 ft. below the level at which sluicing to the plant by gravity is possible and it became necessary to raise this material through this distance. After trying various schemes the machine shown in one of the accompanying illustrations, which is locally known as the "paddler" or "spanker," was adopted. This device consists of an endless chain running in a sheet-iron lined box 18 in. wide and 6 in. deep.

To the chain are attached at 24-in. intervals wooden paddles made of 2 x 6-in. material. The trough is inclined on an angle of about 40 deg. and the chain is driven by the top sprocket at a lineal speed of about

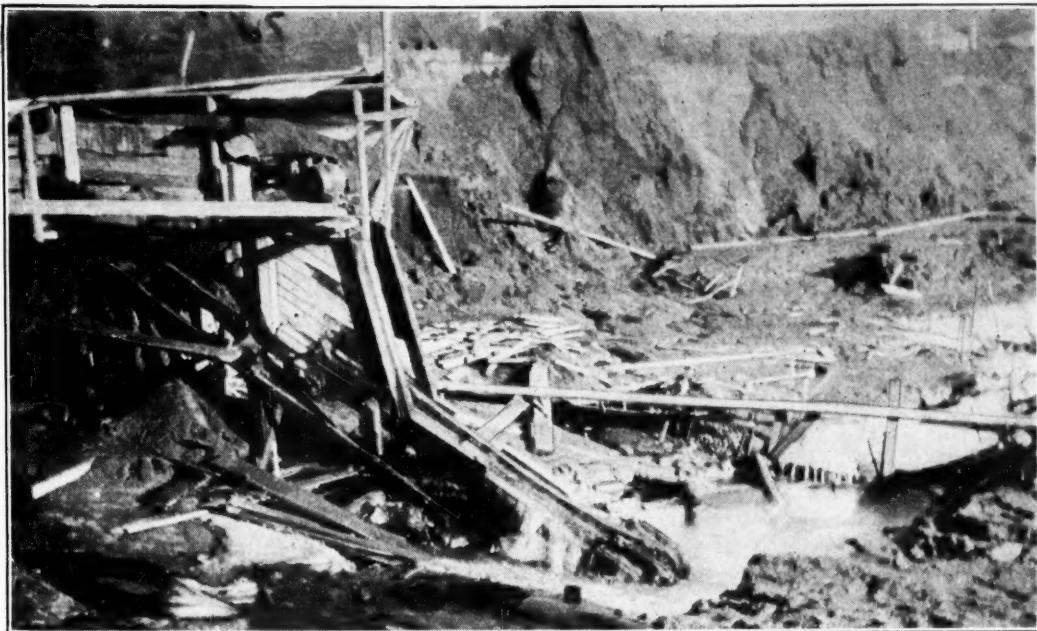


APPEARANCE OF SLUDGE DEPOSIT AFTER SLUICING

By sluicing the coal the effect of segregations which took place in its deposition is overcome and a nearly uniform product finds its way to the tables. Consequently, they can be adjusted for at least long periods at such an angle as will give the most satisfactory result.

Paddling Machine

A dragline conveyor running in a trough runs at an angle of about 40 deg. and lifts the product of the sludge pond into a hopper from which it is elevated to a distributing conveyor.



400 ft. per min. The device handles a mixture of about 400 gal. of water and coal per min.

From the paddler the sludge is sluiced into a hopper, from which it is elevated to the distributing drag conveyor mentioned above. Owing to water shortage the overflow from the hopper is pumped back into the sludge pond together with the overflow from the tables. Clean water, however, is used on the table feed.

Actual cleaning of the coal is accomplished without difficulty, as the tables allow a wide range of recovery. The raw feed contains 28 to 30 per cent ash-forming material. Owing to the high efficiency of the steam plant, a fuel containing 16 to 18 per cent is acceptable provided it is free from sand, clay or shale. This degree of preparation the tables can readily afford. It is possible, however, to reduce the ash content of the product to 10 per cent without losing an appreciable amount of clean coal in the refuse.

Occasional pieces of coal $\frac{1}{2}$ in. in size or over are discharged with the reject material. It would be advisable, therefore, in the washing of fines containing an appreciable amount of coal of more than $\frac{1}{8}$ in. in diameter,

to pass the raw material over a screen of $\frac{1}{8}$ in. mesh and wash the two sizes on separate tables. This would insure a minimum loss of coal in the refuse.

The cleaned coal is collected in a sluice box under the tables and delivered to a settling tank of the usual design. Thence it is delivered, by means of a dewatering elevator, to a loading bin over the tracks.

The plant is capable of delivering 250 tons of clean coal in eight hours and probably will work out the sludge pond in about eighteen months. After this has been accomplished the sludge direct from the mine tipple can be run through the plant together with the crushed refuse from the jigs and picking tables, so as to recover all material of fuel value.

The initial cost and operating expense of a plant of this type compare favorably with the common methods of cleaning and preparing coal. If no immediate market for the cleaned-product exists, however, it would be advisable to allow the sludge to collect in a pond, as it is less liable to spontaneous combustion in that state than if piled in a high and dry location cleaned of all combustible material.

Drove Coal Tunnel 2,000 Ft. in One Month

SOME time in February last the officials of the Alma Thacker Fuel Co. decided to drive a single entry to connect the No. 2 mine workings with those of No. 5. The idea was to eliminate a two-mile haul on a $2\frac{1}{2}$ per cent grade, over which the coal from No. 2 mine had to be hauled to reach the tipple. The No. 5 mine workings are located high upon the mountain directly above the tipple, the coal being dumped into a large chute which conveys it down to the level of the Alma Bed, at which is located the headhouse of the long cable conveyor which transports the coal down a 33-deg. grade 600 ft. long to the screening and loading plant.

The shortest distance separating the No. 2 and No. 5 mines was 1,926 ft. and it was decided to drive the connecting tunnel at this point. Accordingly on the morning of March 1 work was started.

A 5-ft. booster fan was placed behind a curtain of brattice cloth, which was kept within 10 ft. of the face. This enabled the men to work in plenty of fresh air,

while the smoke cleared away quickly after shooting. Everything went well with the project for about a week, then the hoist for hauling supplies up to the mines burned down. This left no way to get supplies to the workings. Next the gathering locomotive "went bad," and another had to be hoisted by hand to take its place. These accidents caused the loss of two days' time, and four days were lost on account of heavy slate falls.

The tunnel was driven from both ends, and on April 1 shots when fired could be heard through the coal by the opposite crews. They were then more than 200 ft. apart. On April 9 a Jeffrey shortwall machine on the No. 5 side cut through to the No. 2 side, thus in 29 days completing a tunnel 1,926 ft. long, making an average driving speed of more than 66 ft. per day, or 11 yd. per day on each end of the tunnel.

Three eight-hour shifts were worked on each end of this tunnel, with five men to each crew. Each shift loaded out two machine cuts. This record probably has been equalled, but not in the Williamson coal field, comprising Mingo County, W. Va., and Pike County, Ky.

Spitzbergen's Coal Is Always Found Frozen But It Explodes as Readily as Ours

First Opening Transferred in 1904 to an American Capitalist
—Island and Mine Owned by Norway and Norwegians Re-
spectively—Explosion of Coal Dust Occurs Apparently from
a Shot Fired When Lifting Bottom and Kills Twenty-six Men

AS LARGE as Scotland, the Spitzbergen islands have a great future as a coal-producing area. Out of the 25,000 square miles, how much will ultimately be proved to be underlaid with coal is still a matter of as much uncertainty as was its ownership until 1920. Only in that year was this "no man's land" ceded to Norway.

"The de facto rights of existing claim owners," says H. M. Cadell in his address on "Coal Mining in Spitzbergen" to the Mining Institute of Scotland, from which these and other remarks are taken, "will be investigated, and if found valid will be legalized and ratified by an international commission to be held in Copenhagen."

At one time, now about three hundred years distant, the islands were considered a part of the British

Empire, but the claim was allowed to lapse, for the land did not appear worth acquiring. Coal was discovered in 1610, but not until the beginning of the present century was mining seriously considered. At that time a company of capitalists of Trondjem, Norway, opened up the beds exposed in Advent Bay, a branch of Ice Fiord.

NORWEGIAN COMPANY SELLS MINE TO LONGYEAR

But the expense was more than its slender purse could afford, so in 1904 J. M. Longyear, an enterprising American, bought the property for £1,000 (\$4,870) and developed the coal under the title of the Arctic Coal Co., of Boston. In 1916 he sold his rights for a large sum in cash and shares to its present owners, the Store Norske Kulfelter, of Christiania. When the war broke out some Swedish capitalists had already pegged off claims, as had also two British companies, the Northern Exploration Co., of London, and the Scottish Spitzbergen Syndicate, of Edinburgh.

The islands constitute a plateau, mostly more than 2,000 ft. in height, of stratified rocks resting on Archean gneiss and granite. In the northern part there are a few recent but extinct volcanoes and some hot springs. The coal measures so far discovered lie on the western part on the main island. The analyses of these coals given by Mr. Cadell should not be accepted as typical; for the samples he took, to judge by the wording of his paper, were none of them of the whole seam and in many cases were from surface showings:

ANALYSES MADE OF CHUNKS OF SPITZBERGEN'S COAL

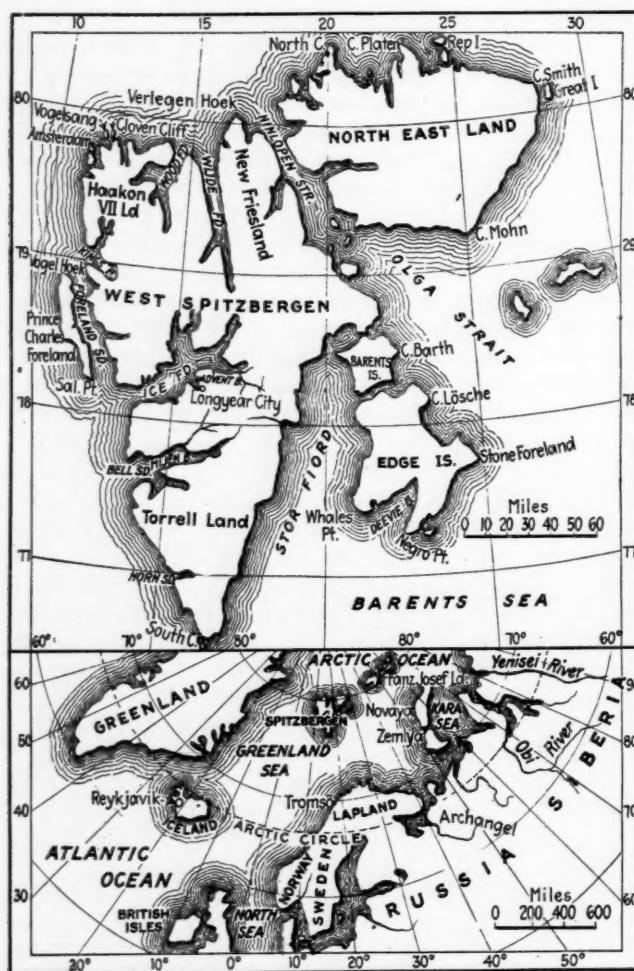
Measure	Mine	Fixed Carbon	Volatile Matter	Sulphur	Ash	Moisture	B.t.u.
Kulm*	Longyear	66.30	28.52	0.36	3.40	1.42	14,373
Tertiary		57.15	37.21	0.73	3.20	1.71	14,130
Tertiary or top of Cretaceous	Anglo-Russian Co.	64.55	31.11	1.07	1.85	1.42	14,328
Tertiary or top of Cretaceous	Braganza	69.88	26.19	0.72	1.62	1.59	14,616

* Kulm is a series of beds found below the Carboniferous limestone resting unconformably on Devonian or possibly Archean measures.

As against this showing the author says that B. Högbom, an eminent Swedish geologist, in Vol. III of the "Coal Resources of the World," says that the kulm contains on an average 10 per cent of ash and is in general inferior to the coals of more recent date. He adds, however, that one seam 6½ ft. thick had only 7 per cent of ash.

The Longyear property has two seams 65½ ft. apart. The lower, which is 3½ to 4 ft. thick and free of bands of stone, is that seam of the two which is found workable. The coal is reached by two planes which rise at a grade of 30 to 40 deg. from an elevation of 200 ft. above sea level to one of 900 ft. These are operated by two electrically-driven haulage engines.

The coal forms a coke which is soft and bulky. There



SPITZBERGEN ARCHIPELAGO WITH MAP SHOWING ITS RELATION TO EUROPE AND ASIA

Coal field, as so far discovered, is on the island of West Spitzbergen adjacent to Ice Fiord. Note how far Spitzbergen is above the Arctic Circle, Iceland and southern Greenland.

are two mines. No. 1 was worked on the pillar-and-stall system, but that method of operation has now been replaced by longwall. Sullivan coal cutters are used and belt conveyors. To permit the cars to run under the end of the conveyor, 2 or 3 ft. of the mine floor is lifted in the roadways.

The ground is frozen to a depth of several hundred feet. In discussing the paper J. B. Atkinson, who has visited the field, estimated that unfrozen ground would not be found at less than 1,500 ft. below the surface. The roof, being frozen, partakes of the character of ice. It bends freely without breaking, and no timber is required at the face. The mines are uniformly at a temperature of 7 deg. F., and the roof, like a fairy crystal grotto, is coated with hoar frost.

In a diamond-drill hole at Klass Billen Bay in Ice Fiord, after stopping for a short time, the borers found that the tools had frozen to the measures, so that the rods could not be withdrawn, and to prevent trouble subsequent boreholes had to be fed with a stream of water from a specially devised heater. As the mines are so completely frozen they do not need pumping, and shafts should be sunk without difficulty, as no water would be encountered.

There is no firedamp in the mine, and open lights have always been used. (Mr. Atkinson in his remarks said that in August, 1913, he had found the mines dry and dusty. Mr. Scott Turner, then manager, took precautions as to the explosives used and he had the dust tested at the experimental station of the U. S. Bureau of Mines, where it was found to be dangerous.)

TWENTY-SIX MEN KILLED IN MINE EXPLOSION

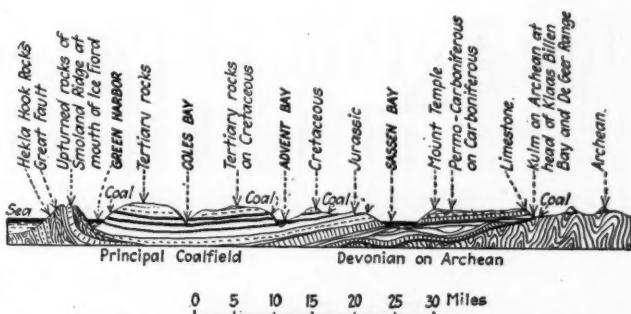
The mine is worked in 8-hour shifts, and during one of these the bottom of the roadways is lifted. On Jan. 3, 1920, twenty-six "oncostmen" were at work, when a terrible explosion occurred that killed every man in the mine and set part of the workings near the mine mouth on fire. It was more than seven months before the fire could be extinguished with water from the melting snows of the hillside above.

All the workmen are Norwegians. Between 200 and 300 are employed. They live in warm wooden houses and work forty-eight hours a week and dine at a community table. Their wages are from \$6.08 to \$7.29 a day, from which is deducted about 48c. a day for board and lodging.

They produce from two to three tons of coal per shift, the temperature being so low that they are not tempted to relax their efforts. Some have brought their wives and families with them to this land of the midnight sun. About a thousand men in Norway have placed their names on the waiting lists, as there is a great desire to be employed on such favorable terms.

As far as operated the field is free from faults and dykes. The dip is everywhere gentle, that at the Longyear mine being between 3 and 5 deg. Unfortunately the Arctic winter lasts from the middle of November to the middle of February. For that entire period the sun is below the horizon and it is more or less dark. For three to five months the coast is accessible to ships.

Stocks of coal are prepared against that short season. Unfortunately the coal thus stocked is somewhat disintegrated by the severities of the cold weather. Another difficulty is that everything, including timber, has to be imported. Most of the vessels must come light or in ballast, and the danger from ice makes insurance heavy. In the winter water for the boilers



CROSS-SECTION OF SPITZBERGEN COAL FIELD

CROSS-SECTION OF SVALBARD COAL FIELD
Most of the coals are Tertiary, but somehow they have at some time received enough heat to make them into high-grade fuels with calorific values of more than 14,000 B.t.u., this despite the rigors of the climate as judged from present conditions and in spite of the fact that the measures are fairly free from folding.

is hard to obtain. A loading plant has been installed at Hotel Ness, in Advent Bay, where 5,000 tons can be loaded per day. An annual output of 200,000 tons is expected.

Stone Used for Dusting Coal Mines Should Be Chosen with Care

DURING a visit of the members of the Lancashire branch of the National Association of Colliery Managers to the laboratories of the Lancashire and Cheshire Research Association at Bolton, England, March 12, James Lomax said that though no orders had been given by the Home Office as to the quality of the stone dust to be used in the mines it must be borne in mind that not all dust could be described as innocuous to health.

If silica was in the dust distributed through the mine it would undoubtedly bring the lives of the men to an earlier end. For this reason the character of the dust to be used should be given careful inquiry. Fuller's earth has been proposed and some were using the refuse of the mine works. However, fuller's earth, when examined under the microscope, is shown to contain particles of quartz, and when ground these will form a bad dust. Flue dust, which has been used for mine sprinkling, is as bad as that made from siliceous rock.

The dust for sprinkling should be not merely harmless to the lungs of the men who work around it but of such a character that any sort of detonation will set it into suspension with the coal dust it is intended to guard. A sample of dust from a ledge three feet above the floor in a roadway that had been sprinkled with stone dust was tested by giving the surface on which it was placed a thump from below. In many cases the coal dust rose, leaving the stone dust behind, showing that in the event of an explosion the stone and coal dust would be separated and the dusting useless.

Mr. Lomax showed specimens of coal dust taken in a roadway 6 ft. high, one from the floor, one at a height of 3 ft. and one from the roof. They differed from one another, the coal dust on the floor being a large percentage "fusain" ("mother of coal"; see *Coal Age*, page 384, issue of Aug. 19, 1920). These particles were large and would not spread, so that, as compared with the other dust, they did not travel far but gravitated to the floor. In the second sample the particles were fewer and more regular and the proportion of fusain was smaller. The third was the dust from the roof. Seen under the microscope it consisted of very thin flakes and particles of coal dust. That material was always in suspension and was exceedingly inflammable.

How to Protect Pulverized-Coal Plants From Dust Explosions and Fires

Vacuum System Should Remove Dust From Air in Building—Avoid Excessive Heat in Drier, Which Causes Fires in Storage Bins and Pre-disposes Coal to Oxidation and Heating—Keep Air Supplied for Burning Coal From Forcing Its Way Into Coal Supply Line, Taking Sparks with It

AT THE REGULAR bimonthly meeting of the mechanical section of the Engineers' Society of Western Pennsylvania, held Tuesday evening, April 5, in the William Penn Hotel, Pittsburgh, L. D. Tracey, coal-mining engineer of the Pittsburgh experiment station of the U. S. Bureau of Mines, read a paper entitled "Explosion Hazards in Industrial Plants Due to the Use of Pulverized Coal."

At its experimental operation at Bruceton the Bureau of Mines has made, as is well known, an exhaustive study and many tests on the explosibility of bituminous coal dust in mines. It has recently entered the industrial field, investigating a number of fires and explosions that have resulted in loss of life and property damage at plants which had substituted pulverized coal for natural gas in the operation of their heating furnaces.

Mr. Tracey may be quoted as follows: "Generally speaking, two distinct methods are now in use for firing pulverized fuel which may, for convenience, be termed the direct and indirect. The two methods prepare the coal for the furnace in a manner which differs only in detail, the real difference between them lying in the way in which the pulverized fuel is transported to the furnace.

COAL MAY BE FED BY AIR OR SCREW CONVEYORS

"In the direct method, after the coal has been pulverized, it is fed in regulated quantities to a fan, by which it is forced in a cloud through pipe lines ranging from 8 or 10 in. up to 16 in. in diameter. Branch lines leading from this main to the furnaces convey the coal as may be needed. The surplus coal which has not been drawn from the main lines returns to the line near the starting point, where a separator removes the coal dust from the air and returns it to a storage bin to be blown again through the line.

In other words, a continuous circulation of coal dust is maintained, the system being somewhat analogous to that obtaining with a gas line, from which the fuel is drawn off as required. Secondary air lines, independent of the main coal-feed pipes, provide the additional air needed at the burners for proper combustion.

"In the indirect method the coal is transported either by means of compressed air, under perhaps 50-lb. pressure, or by screw conveyors to bins at the furnaces. From these bins, the pulverized fuel is fed, generally by screw conveyors, to an air blast which carries it into the burner.

"As a rule the building which houses the crushing, drying and pulverizing machinery is separate from the industrial portion of the plant. It is believed that this is highly desirable from a safety standpoint. Explosions and fires have been known to occur in coal-pulverizing plants which might have been more disastrous if they had happened in buildings containing both the pulverizing equipment and the plant in which the power generated from the fuel is used.

"Adequate ventilation is absolutely necessary in a pulverizing plant. It is unwise, however, to depend entirely on ventilation to overcome the coal-dust hazard, for in any

building there are many angles and corners into which the air currents never reach and where the suspended dust is free to settle. A small amount of coal dust per cubic foot of air suffices to cause an explosive mixture. In tests conducted by the Bureau of Mines, 0.032 oz. of such dust per cu. ft. of air was found sufficient to cause an explosion when brought into contact with a flame.

"It is believed that it is practicable to install a vacuum-cleaner system in a coal pulverizing plant, by means of which all parts of the building in which dust is liable to settle may be reached and cleaned. This has been done in some of the coal-crushing plants in France and Germany, and in a few instances in our own country. Dust should never be brushed or swept up without first being thoroughly wetted down. This applies not only to the pulverizing plant but also to the industrial portion of the operation.

ACCIDENTS FROM COAL IN INDUSTRIAL PLANTS

"There are on record with the bureau two actual instances in which accumulated dust has been the direct cause of accident, although, fortunately, no one was seriously injured. One of these was caused by the short-circuiting of a starting switch in one of the motors of a steel mill. Coal dust had gradually accumulated between the poles, and, absorbing moisture, became a good conductor, thereby causing the current to short-circuit and burn out one of the switchboard panels in the power house. The second instance arose from an accumulation of dust being accidentally blown by air from a compressed-air tank toward a furnace. The cloud ignited, and the room was immediately filled with a sheet of flame.

"It would seem advisable from a safety standpoint for the management of all industrial plants in which pulverized coal is used for fuel, and especially in those

Pulverizing plant should be in separate building. Man in charge of drier should be counselled against use of excessive heat. It is asserted that high temperature is not as effective as one that is moderate, and it is, of course, more dangerous. Stoppage of fan or of the transport pipe may cause backfires.

establishments in which heating and annealing furnaces are installed, to impress upon their employees the fact that clouds of fine coal dust are quite as dangerous as bodies of unconfined natural gas. If such dust is liberated in close proximity to an open flame or mass of hot metal, trouble is likely to follow.

"I investigated an explosion in a steel mill which undoubtedly arose from coal dust, and, although one man was killed and two badly burned, the superintendent of the mill profanely insisted that coal dust would not explode.

OXIDATION OF OVERHEATED COAL CAUSES FIRES

"One of the most serious difficulties with which the users of pulverized coal have had to contend has been the number of fires which have occurred in the dried-coal and pulverized-storage bins. It has been somewhat difficult to determine the exact cause of these fires, but there can be no doubt that spontaneous combustion has played an important part in some of them.

"Unfortunately, as far as I can learn, no work has been done to determine the rate of oxidation of coal under the conditions which govern its use in pulverized-fuel systems. However, fairly extensive investigation has been made into its spontaneous combustion under somewhat different circumstances, and some of the results of these tests can be utilized in the study of fires in pulverized-coal and dried-coal bins.

"It is obvious that coal in a fine state of division presents a much larger surface and so brings a greater quantity of the reacting substances into contact with oxygen than when in solid mass." In tests by Parr and Kressman, described in an article on "The Spontaneous Combustion of Coal," published in the University of Illinois Bulletin No. 46, it was learned that the rate of absorption of oxygen increases so greatly with the rise of temperature that the warming of coal by a steam pipe or boiler may enormously shorten the time necessary for spontaneous combustion or render self-ignition of the coal possible in cases where it would not otherwise happen.

In experiments made by the Bureau of Mines and described in Technical Paper No. 65, by Horace C. Porter and A. C. Ralston, entitled "A Study of the Oxidation of Coal," it has been determined that the rate of oxidation of coal increases markedly as the temperature rises and that above 150 deg. F. the rate is quite rapid.

"As the amount of heat generated is in direct proportion to the quality of oxygen absorbed, it is reasonable to assume, from results already mentioned, that pulverized coal when delivered to storage bins at a fairly high temperature will in a short time approach the ignition point. From what I have been able to ascertain, companies manufacturing and installing coal-pulverizing systems advocate a drying temperature of from 100 to 150 deg. F., at which temperature the coal is delivered to the storage bins.

LOWEST TEMPERATURE IN THIS DRIER 320 DEG. F.

"Unfortunately, however, the human element plays an important part in the operation of a drier. For instance, one cold night not long ago a man operating such a device must have built up an exceedingly hot fire in the drier furnace, for at the time an explosion occurred the pyrometer near the stack registered 320 deg. F. Inasmuch as the drier coal was delivered at the furnace end of the drier, it is probable that the

temperature of the coal was actually considerably greater than was recorded by the pyrometer at the stack.

"At another plant in which a fatal explosion occurred, and which I investigated, it was learned that the pulverized coal was delivered to the bin at a temperature of 230 deg. F. Some of the workmen in the mill stated that at times the sides of this bin became red hot.

"At this point I want to digress a moment and speak of the effect of high drying temperatures as a matter of efficiency. I have heard complaints that even though the coal is dried at high temperatures there is still moisture in the bins. Paradoxical as it may seem, coal dried at an abnormally high heat will contain more moisture than when dried at a temperature of from 100 to 150 deg. F. The reason for this, as given by the fuel section of the Bureau of Mines, is that extremely hot coal carries with it as it travels from the drier a certain amount of vapor, arising from the evaporation of moisture in the surrounding air with which the hot coal is brought into contact. This accompanies the coal and is condensed by the comparatively cold sides of the bins and conveyors.

"It is possible that better results would be obtained if the coal was dried at a stack temperature of from 100 to 150 deg. F. This might give a coal surrounded by a drier atmosphere and obviate the condensation on the sides of the bins.

COAL MAY BE KEPT TOO LONG IN HOT DRIER

"Returning to the subject of abnormally hot coal in the bins, it is reasonable to suppose from the data available on spontaneous combustion that any coal that is delivered to the storage bins at a temperature of 150 deg. F. or above, if allowed to remain for a comparatively short time, will attain such a temperature that when mixed with air it will quickly reach the ignition point.

"Coal may be overheated in a drier not only by the building of an abnormally hot fire but by allowing the coal to remain in the drier drum when the machine itself is not in operation, and this overheating may occur if only a normal fire is being maintained in the drier furnace.

"It is believed that fires in pulverized-coal storage bins, oftentimes arising no doubt from spontaneous combustion, have been responsible for some of the fires in the coal-conveyor lines through which the pulverized fuel is blown in a dense cloud to the furnace. A number of fires have been investigated by the Bureau of Mines in which almost without warning flames have burst from the coal-conveying lines. As far as could be ascertained, these pipes were free from any obstruction, the fans were operating normally, and the burners at the furnaces had been giving no trouble.

"It seems perfectly logical, therefore, to assume that the pulverized coal in the bins had been heated by spontaneous combustion almost to the ignition point, and when conveyed to the coal-transport line the air current induced by the fan supplied enough additional oxygen to produce incandescence in certain particles of coal which in turn ignited the dust cloud as it passed through the line.

"Whenever a plant has been shut down for a few days, before any pulverized coal is delivered through the transport lines to the place of consumption an examination should be made to ascertain whether it has become heated to such a point that it might cause

ignition when brought into contact with a current of air. This can be done by pushing iron rods into the interior of the stored coal and leaving them for a short time. When they are withdrawn the temperature of each rod will indicate whether the coal in the bin thus tested is burning.

FAN STOPS OR PIPE CLOGS, BACKFIRE RESULTS

"Some of the fires occurring in plants having the direct system of feed have undoubtedly originated from the coal backfiring from the heated furnaces. These backfires probably have been caused by the air pressure in the distribution lines suddenly dropping below that afforded by the blowers or other devices, the function of which is to furnish sufficient oxygen for the proper combustion of the coal in the furnaces.

"The average pressure used in such a system is about 9 oz. in the main distribution lines and about 4 oz. in the lines delivering air for combustion. The air for the distribution line generally is delivered by a blower fan which is operated independently of the one on the other air line.

"A stoppage of the fan or an obstruction in the air line may cause the pressure in the main distribution line to drop. On the other hand, so many furnaces may be placed on one line that the last one or two to receive fuel may be fed at a pressure so low that it is less than that of the air supplied for combustion.

"When this happens there is a tendency for the secondary air to 'short-circuit' and travel up the coal-feed line into the main distribution pipe, carrying with it hot gases and incandescent particles from the burner, and thus igniting the fine coal therein. It may happen, if the air in the distribution line is temporarily shut off, that there will not be enough oxygen in the line to support rapid combustion and the mass will simply smolder until the current again becomes normal, when the smoldering coal will be fanned into a flame. Whenever booster fans are used in the system it is extremely important that the pressure on their intake sides shall be kept positive, otherwise air will be drawn from the furnace and the result will be the same as if there were a backfire.

COKE ON THE BURNERS CAUSES MUCH TROUBLE

More or less trouble comes also from the tendency of the coal to coke on the burners. Experience seems to show that from any one or more of several causes the burner becomes red hot at its extreme end. Among the possible reasons may be enumerated too much coal for the amount of air or slowing down of the secondary blower from fluctuations in the power line, either of which may cause the coal to adhere to the burner. As the accumulation increases the area of the burner decreases, with the result that sometimes the orifice actually becomes plugged.

In cases of this kind as the air supplied for combustion has no other outlet, the current will tend to be deflected into the coal supply line and it will take red-hot dust with it and eventually cause a fire or explosion in the main distribution line. To avoid these mishaps the burners should be frequently inspected, and if any coke is found on them they should be immediately cleaned. Some of the steel mills employ a man whose sole duty it is to inspect and clean burners.

Some of the mills when shutting down at the end of the day's work leave a small quantity of coal in the bottom of the coal transport line, the reason given

being that the furnace then can be started much more quickly than when the line has been blown clean the night before. This is rather a dangerous practice, as the mixture of dust and air is, of necessity, a lean one, perhaps at its most explosive combination, and if through any chance hot coal is received into the line an explosion is bound to occur.

"In the interests of safety, when the plant closes down at night all furnaces should be cut off from the supply line; the main pulverized bin also should be cut off from the main transport line and that pipe thoroughly cleaned by allowing the fan to force a current of air through it until all the pulverized coal is blown out.

"In all coal-pulverizing plants electricity plays a large part. It is extremely important, therefore, that the electrical equipment be of such a type and installed in such a manner that danger of coal ignition is reduced to a minimum.

USE "PERMISSIBLE MOTORS" IN DUSTY PLANTS

"In the work the Bureau of Mines has done to lessen the number of fatalities in coal mines it has developed a schedule of requirements for the construction of electric motors employed in coal-mining equipment which enables them to operate safely in gaseous and dusty mines. When such motors have passed this schedule and have satisfied the tests involved they are classed as 'permissible motors.'

"It would be possible to build similar machines for use in all plants in which dust may be an explosion hazard, and this suggestion is offered to those who may be interested in the manufacture of electrical equipment.

"I would summarize this paper by giving regulations that should be observed in the operation of pulverized fuel plants: Absolute cleanliness is essential, as well as freedom from any accumulations of dust, both in the pulverizing plant and in the buildings in which powdered coal is being used as a fuel. Never brush or sweep up the dust on the floor or brush it from the machinery without either first wetting the dust down or thoroughly mixing it with an excess amount of fine incombustible material. Adequately ventilate and light all coal-pulverizing plants, and, when practicable, install some vacuum method of cleaning.

"All open lights in and around the plant should be prohibited, and employees should not be allowed to smoke while in the building. This rule should also apply to superintendents and other officials who casually visit the premises. The drier and its furnace should be separated by a fireproof partition from the pulverizing mills, conveying machinery and storage bins. All pulverized-coal bins should be tightly closed and never opened if there is any possibility of ignition from an open flame. Bins should be equipped with automatic indicators to show the amount of coal they contain.

"Only men of known reliability should be entrusted with the direct operation of a drier. It may be more economical in the long run to pay a high wage to a trustworthy man than a smaller wage to an unreliable man or boy. Especial care should be exercised in order not to overheat the coal in the drier. Recording pyrometers should be installed to enable the officials of the plant to check the operation of this piece of apparatus. The drier should never be stopped while it contains a charge of coal. Fire in the drier furnace should never be started with paper, shavings or any light combustible material.

"Fine coal at a temperature of above 150 deg. F. should never be stored in a bin because of its liability to spontaneous combustion. For the same reason, pulverized-coal storage bins should never be placed in close proximity to furnaces, boilers, steam pipes or flues. Whenever a plant is to be shut down for a few days, if possible all storage bins should be emptied. Where it is not possible to empty the bins they should be thoroughly inspected for hot coal before the plant is again placed in operation.

"In the direct system of using pulverized coal the pressure of the distributing air should always be maintained well above that of the air supplied for combustion purposes. If a coal-transport line becomes plugged, the furnaces should be immediately cut off and the flow of secondary air stopped. After the line has been cleaned it is essential that no smoldering particles of coal be left in it, and before starting the fan the line should be thoroughly examined. Burners should be frequently inspected and any coke burned onto them should be removed. Transport lines should be blown clean when shutting down at the end of the day's run in order that coal may remain in them.

"Never ignite the mixture of air and coal in the furnace by reaching in or opening the doors. All conveyors and elevators should be tightly inclosed and should never be opened while running. The machinery should be stopped and the dust allowed to settle before the devices are opened. Never open a coal line, compressed-air tank or storage bin in the vicinity of a flame or open light.

"As far as possible, enclose all electric wires and cables in conduits. All switches should be placed outside the plant or else housed in dust-proof casings. Non-sparking motors or those encased in dust-proof housings should be used. By thoroughly grounding, guard against sparks from static electricity in all rapidly moving machinery.

LIGHT BULBS SHOULD BE KEPT FREE OF DUST

"All electric-light bulbs should be kept free from accumulations of dust and all portable lights should have the bulbs protected by heavy wire guards. Care should be taken to prevent arcing from loose socket connections or imperfectly insulated cords. Stop all leaks in pulverized-coal transport lines or storage bins as quickly as you would leaks in a gas line. Prohibit smoking, open lights or torches around the plant. Educate all men employed as to the dangers of pulverized coal dust.

"Doubtless as the supply of gas decreases pulverized coal will be increasingly used in industrial plants as a substitute fuel. Especially will this be so in those using heating furnaces of various types for the manufacture of steel products. This increase probably will develop more efficient and safer methods for the preparation and distribution of this fuel."

Harvey Allen, efficiency engineer of the Pressed Steel Car Co., led the discussion at the conclusion of the reading of the paper by Mr. Tracey. He corroborated many of the findings reached by the author and stated that a vacuum system similar to those utilized in large hotels had been installed by his company at its McKees Rocks plant, and had given general satisfaction. The interior of a pulverized-coal plant must be designed with considerable forethought if the vacuum system is to be given an opportunity to operate efficiently. All unnecessary ledges and shelving whereon the dust may accu-

mulate should be dispensed with. Mr. Allen also believed that a coat of white paint should be applied over the walls and ceilings in order that a dusty atmosphere the more easily might be detected. Stucco and plaster walls are thought to be the best type of interior construction for buildings of this character.

ADVISES USE OF SMALL DISTRIBUTION LINES

W. Greenwood, safety engineer of the Youngstown works of the Carnegie Steel Co., was of the opinion that spontaneous combustion might occur in a distribution pipe of large diameter more easily than if a line of smaller size was employed. He contended that the dust particles would adhere to the sides of the large-diameter pipe, and that this condition would not obtain in a smaller pipe by reason of the increased velocity that would necessarily be used. The men employed around the plant should be carefully instructed as to the dangers surrounding them.

Mr. Greenwood stated that it was a wise practice to provide that each pulverizing plant supply fuel for a variety of uses. In this manner it would never be necessary to close down the entire works. When this is done storage is necessary and spontaneous combustion in the storage bins is likely.

Mr. Greenwood then mentioned a number of regulations that should be enforced in addition to those pointed out by Mr. Tracey. Short-radius pipe bends should not be used in the distribution line. All electric control boards, if possible, should be located outside the building. Alternating current is preferable to direct for the driving of the machinery, and the burners should be of such a type as to preclude the possibility of coke being formed on them.

A member then inquired whether driers could not be dispensed with in the operation of a pulverized-fuel system and how long the coal in the storage bins could stand without being liable to spontaneous combustion after the plant had been shut down. In reply it was stated that some believe that driers can be dispensed with. However, the fuel burns best when containing 1 per cent of moisture, and the driers permit the fuel to retain this amount. If this equipment is not installed the pulverized coal cannot be burned to best advantage and worth-while economies cannot be effected.

PUTS LIMIT OF TIME IN BINS AT FIVE HOURS

Mr. Tracey replied to the second half of the question. He was of the opinion that after four or five hours had elapsed the coal in the bins would be in danger of igniting. In this connection the time interval is gauged by the kind of coal used and the percentage of volatile matter that it contains. Certain qualities of coal dust may be permitted to stand in the bins with perfect safety, whereas others have to be removed shortly after the plant ceases operations.

L. W. Marso, sales engineer of the Quigley Furnace Specialties Co., then remarked that the Industrial Commission of the State of Ohio had studied the subject of coal-pulverizing installations, and would soon issue a code to govern such installations in that state. He hoped that the standards adopted by this commission would be used as a basis for similar state organizations elsewhere. He trusted that the Bureau of Mines would co-operate to the end that national standards might be adopted at an early date, whereby coal-pulverizing plants might be able to operate most efficiently with a minimum of danger.

Watchman Sole Attendant at Filtered-Water Plant Supplying People of Langeloth

Filtration Plant Located at Eleven-Acre Reservoir Four Miles From Mining Town—Water Is Automatically Decolorized, Sterilized and Filtered Before Being Pumped to the Town-Supply Reservoir—Clarified Water Is Used Even for Fire Fighting

BY DONALD J. BAKER
Wilkinsburg, Pa.

IN ITS healthfulness of location and in the care taken to prevent the spread of disease germs—ever present where humanity congregates—few industrial communities of western Pennsylvania can compare with Langeloth. This village, located near Burgettstown, in Washington County, houses the mine and mill workers of the American Zinc & Chemical Co. Though the town has a population of only about 2,500 it guards and maintains the health of its inhabitants better than do most small cities. The influenza epidemic of 1918 and 1919 proved conclusively that the average coal-mining community was an ideal home and breeding ground for the germs of, at least, that disease, if not of many others.

Langeloth, however, is a town of which the builders may well be proud, for its living conditions are excellent. Its houses, of the bungalow type, are erected upon wide and carefully-planned streets and, being built upon a side hill, overlook a wide expanse of country. So much for its creature comforts and its scenic attractions, but more important is the fact that it is for many reasons more than ordinarily healthful. It is located at some distance from its nearest neighbor and so has the advantage that isolation always gives when disease is rife. An effective sewage-disposal plant has been provided. Few indeed are the mining towns of a size comparable to Langeloth that can report such sanitary provisions as that town is favored with.

Water for the town is taken from a dam four miles distant and located near Dinsmore, on the Panhandle division of the Pennsylvania R.R. This water is decolorized, clarified and sterilized before being used, and even

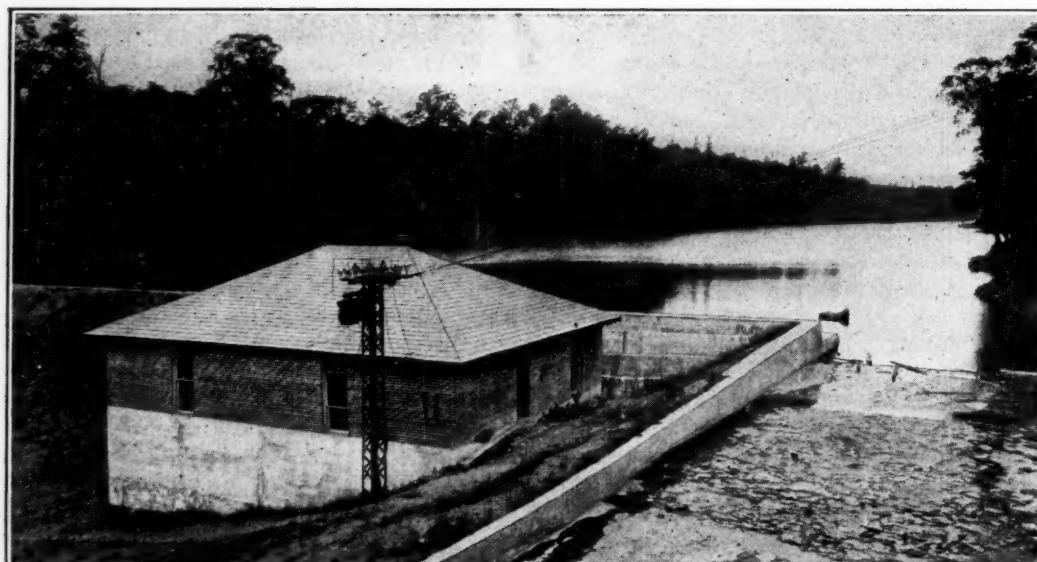
that employed for the fighting of fires first passes through all the degrees of purification just enumerated. The water is systematically filtered, even though the reservoir from which it is drawn is fed by mountain streams and springs.

RESERVOIR WHEN FULL HOLDS 3,000,000 GALLONS

The water thus impounded covers an area of eleven acres, the pond when full containing about 3,000,000 gallons. It is not so situated, however, that its failure would endanger the existence of any town if, through time and inattention, this dam were to give way as did the one in the Conemaugh Valley above Johnstown, the failure of which resulted in the memorable inundation of that city.

No human habitations are located on the banks of the streams that are tributary to this small lake. Most of them have their origin in springs. When the water reaches the dam it is a fairly clean and healthful product although during rainy seasons, particularly during open winters such as the one just past it, like all impounded waters, is liable to discolorization. At such times, of course, the water is apt to carry undesirable bacteria. The reservoir has, however, been stocked with fish, and fish in any open water tend to reduce its active or harmful bacteria content, thereby increasing its purity.

The location selected for the dam was one that had been utilized for a similar purpose years ago. When the company took over the property a small dam was already in place. The old structure had been built in the main around a concrete wall with a face appropriately

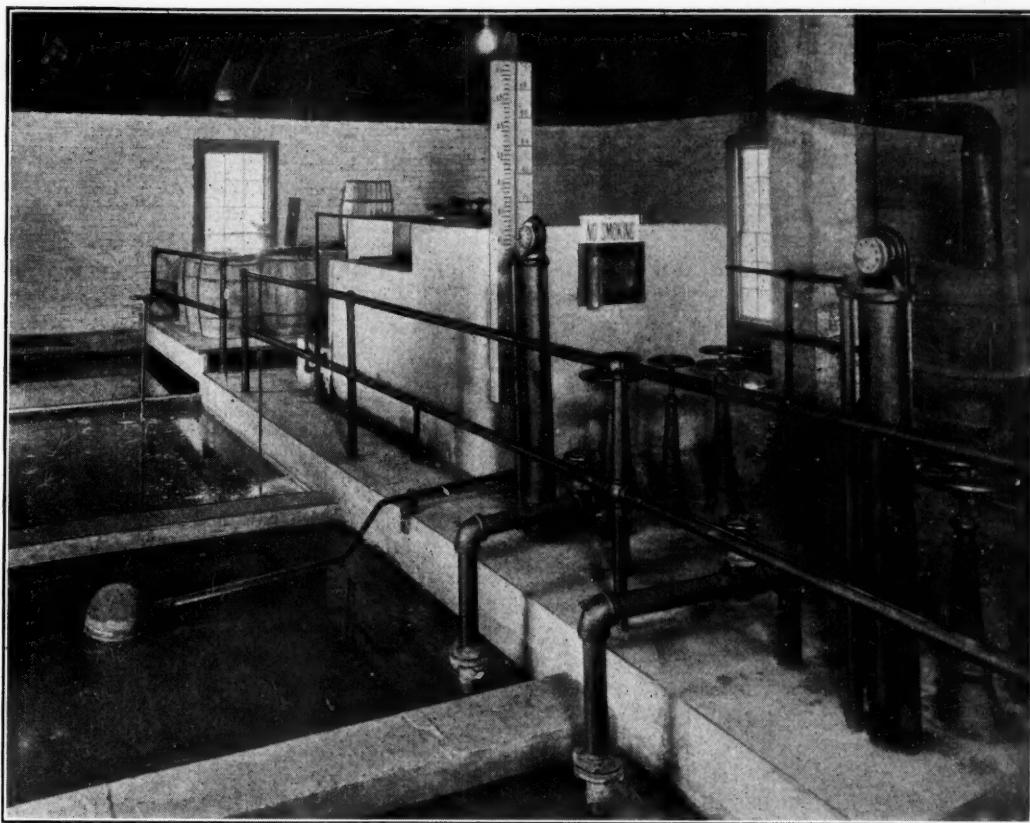


Filtration House

Built at such a level that the casting of the 5-hp. pumps used to deliver the water to the tanks is always filled and does not require priming. From this building water is pumped to the village of Langeloth.

Inside the Filtration House

Portions of two filter beds may be seen in the left foreground. By the action of plates which control valves in the entrance pipes, water is not permitted to rise above a given point. In the rear are the sedimentation tanks and on the right center with the "No Smoking" sign are the automatic mixing tanks which supply the coagulant and sterilizing fluids in appropriate volume.



battered. This was laid on the bed rock of the basin. Its foot was 6 ft. below the surface of the ground and its top only 10 ft. above it. The capacity of the pond thus formed was, therefore, somewhat limited. Consequently the company resolved to increase the volume of impounded water, but it did not seem advisable to employ the old concrete wall as a core for the new structure.

OLD DAM HELPS STRENGTHEN CONSTRUCTION

Accordingly a new concrete wall was built 30 ft. downstream from the old one, to serve as a core for the new dam. This when completed was 31 ft. in over-all height, including in this figure the 3 ft. which the wall is sunk into the bed rock. The wall is 3 ft. thick at the bottom and decreases upward till at the top it is 18 in. thick. It is somewhat more than 300 ft. in length. Earth was used as a fill between this wall and the older one, and an additional fill of the same material was made on the downstream side of the wall, this latter fill lying at a slope of 45 deg. and its toe being 44 ft. horizontally from the foot of the core wall at the ground line. A slope such as this is well within the angle of repose for loose earth. The dam therefore consists of two concrete walls and ample earth filling, assuring a rigidity not often found in constructions of this nature.

A spillway 60 ft. wide, its bed being 5 ft. below the top of the new core wall, has been built at one side of the dam—not in the middle, as is common practice. The filtration house is located at the foot of the core wall, and the spillway curves along the side and around to the rear of it. It was desirable to locate the filtration plant as near as possible to its water supply in order to introduce the water to the building with a minimum of complication. Near this house the concrete wall has been given additional reinforcement to compensate for the absence of the earth fill at this point.

Constructed of concrete and brick and provided with a slate roof, the filtration house is of a highly permanent character. The apparatus installed in it is entirely mechanical in its operation. A man, of course, is detailed to the building, but he acts largely in the capacity of a watchman. He makes periodic tests of the filtered product, however, a daily report being demanded by the state health department.

Raw water is brought into the building through a 3-in. pipe which leads to a small centrifugal pump driven by a 5-hp. motor. The casing of this pump always is filled with water because it lies below the intake level of the pipe in the dam. Consequently it is unnecessary to prime the machine when beginning operation. This unit together with two others employed in forcing the water to the town is situated on the ground floor of the building.

By this small pump the water is delivered to the second floor of the filtration house, where the various clarification processes take place. These processes are well described by M. F. Newman, manager of the water-purifying department of the Wm. B. Scaife & Sons Co., which firm designed and installed the equipment.

SEDIMENTATION PERIOD IS THREE HOURS

The filtration system consists essentially of a concrete sedimentation basin 30 ft. long, 20 ft. wide and 13 ft. 6 in. deep, provided with a vertical baffle partition, a weir inlet and a weir outlet. The basin is so ample that it is the general practice to allow the water to stand in it for a period of three hours. It is divided by the baffle into two compartments, so that either may be emptied and washed while the other remains in operation. Two rectangular concrete filter units are provided, each 10 ft. long, 7 ft. 6 in. wide and 8 ft. deep. These are equipped with a manifold strainer-pipe system and a special type of brass strainer, so designed that during the regular

operation of the filter all its openings are carrying water from the filter.

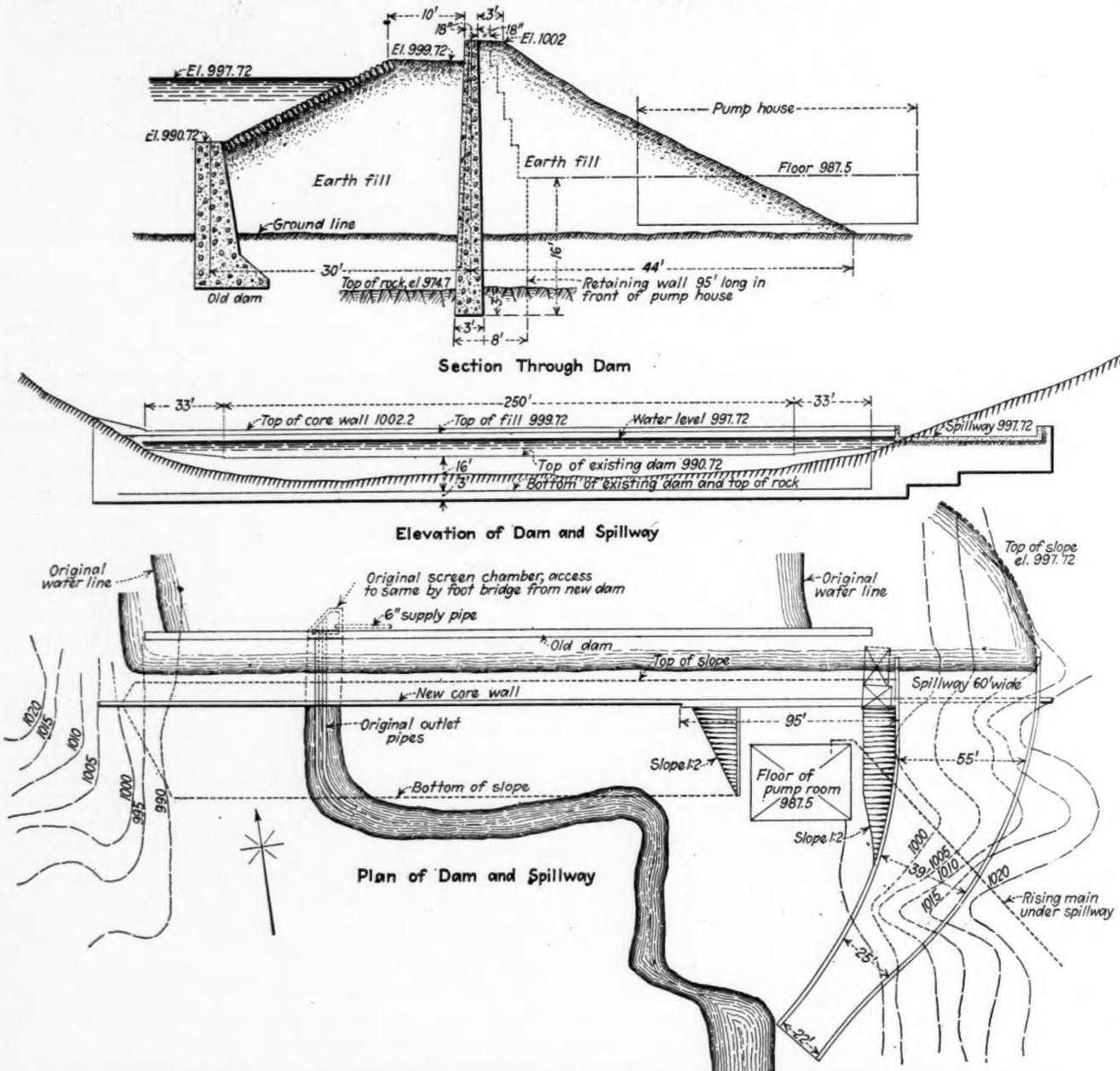
During the washing process, because of the pressure of the wash water, some of the openings in the strainer are closed, so that the total discharge of the water through those remaining open equals the discharge of the wash water through the main to the filter. This insures a uniform distribution of the wash water to all parts of the filter, a proper liquefying of the entire sand bed thus producing an efficient wash over the whole area of the filter, with a minimum consumption of water.

The filter units also are provided with brass air-wash pipes which pass compressed air through the sand during the washing period, thus keeping it in agitation. The compressor furnishing the air is located in the pumproom and is operated by a motor having a capacity of 3 hp. Each filter is equipped with a rate controller to prevent filtration at a greater speed than two gallons per square foot per minute and is also provided with a

loss-of-head gage which indicates the condition of the filtration bed.

Introduction of a coagulant and of a sterilizing solution is made by patented equipment operated directly by the flow of water to the system. The accompanying illustration shows the details of the apparatus. The raw water enters the weir tank, in which it is divided into two streams. The main flow goes over a large fixed weir, a proportioned quantity being diverted through a similar but smaller weir. This smaller stream is delivered to a compartment containing a siphon.

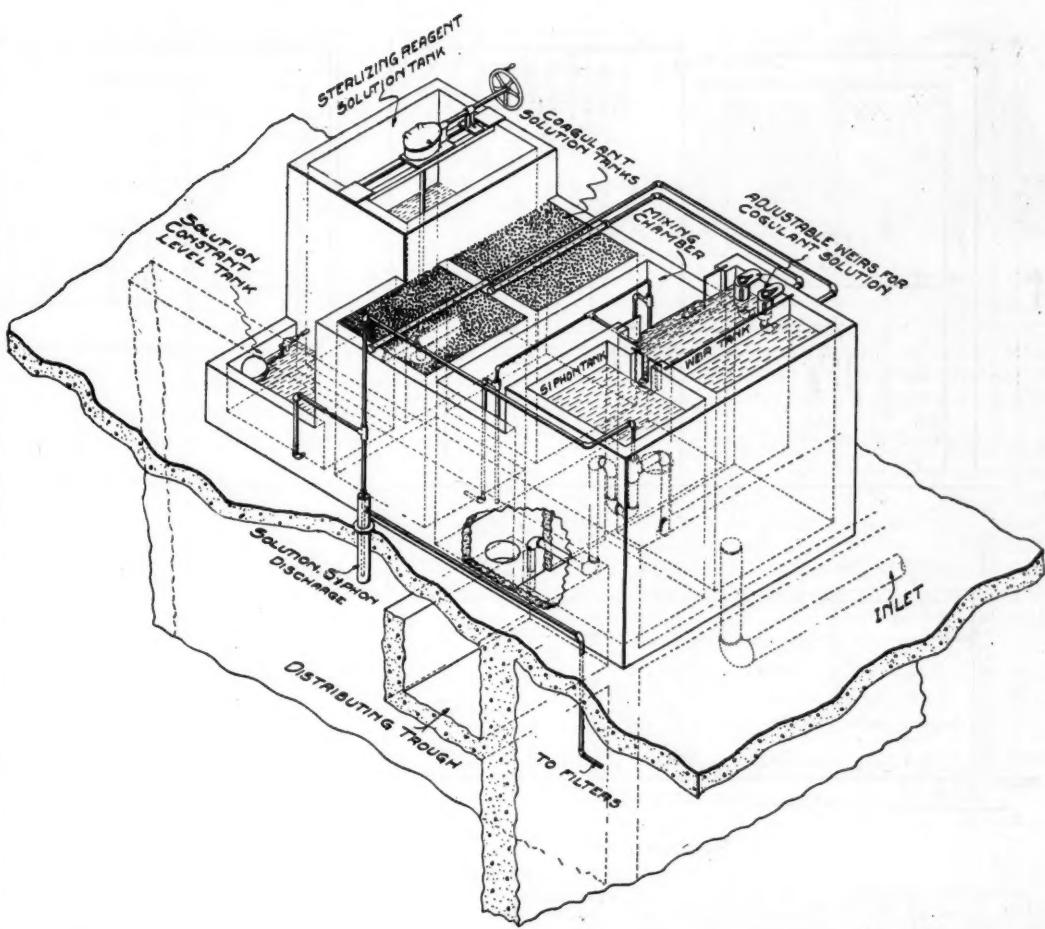
When the water in this compartment reaches a certain height it starts the siphon into operation. This discharges the water into the mixing trough in the sedimentation basin, where it mingles with the stream flowing over the main weir. Connected to this main siphon is another auxiliary to it, which introduces the sterilizing reagent during the period occupied by the flow of the main siphon.



OLD AND NEW DAM ON RESERVOIR OF AMERICAN ZINC AND CHEMICAL CO. AT DINSMORE, PA.
In order to raise the level of the impounded water 10 ft. a new wall was built outside the old one but so close that advantage is obtained from both these structures. The old dam was of the retaining-wall type, but the new one is only a core giving not so much strength as resistance to seepage, the earth filling affording the necessary resistance to the pressure of the water.

Chemical Treating Tank

This plant automatically delivers an amount of chemicals to accord with the quantity of water passing at any time. All the water flows into a weir tank where it is divided into two streams both of equal depth but extremely different width. The smaller stream being always proportional to the larger can regulate to a nicety the delivery of the solutions by which the main body of water is sterilized and its impurities coagulated.

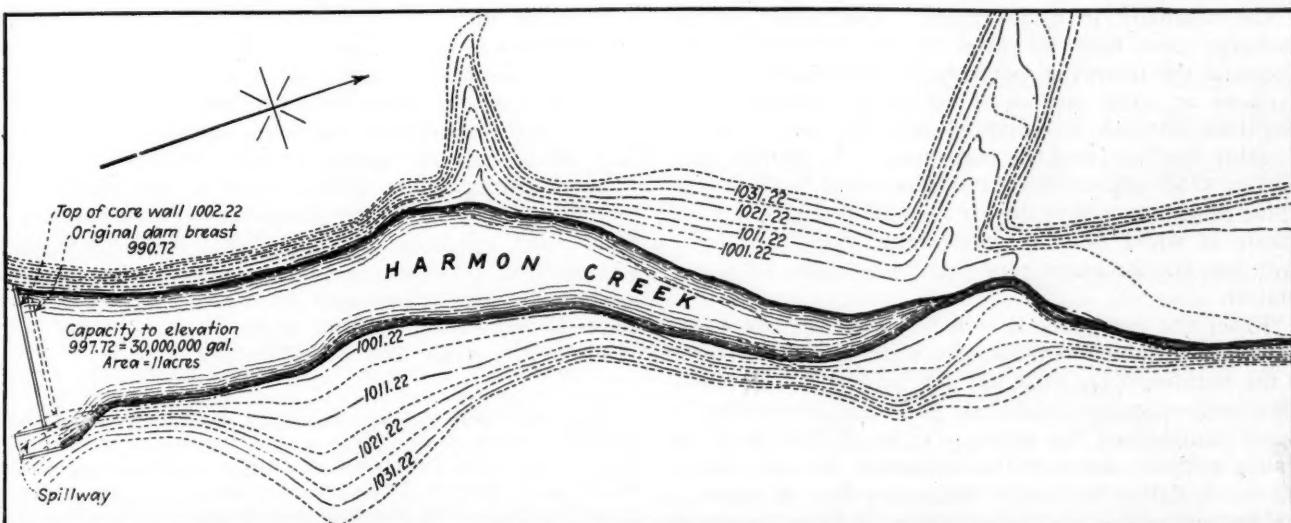


The tank in which the sterilizing reagent is dissolved is connected to a constant-level tank from which the auxiliary siphon is fed. As soon as the compartment from which the main siphon operates is emptied the auxiliary siphon ceases to flow until the compartment is refilled to a point where the main siphon begins to operate. The harmonious action of these two siphons depends upon the periodic rise of the water to the same height in the main siphon compartment. The filling of this compartment is in direct proportion to the rate of flow over the main weir.

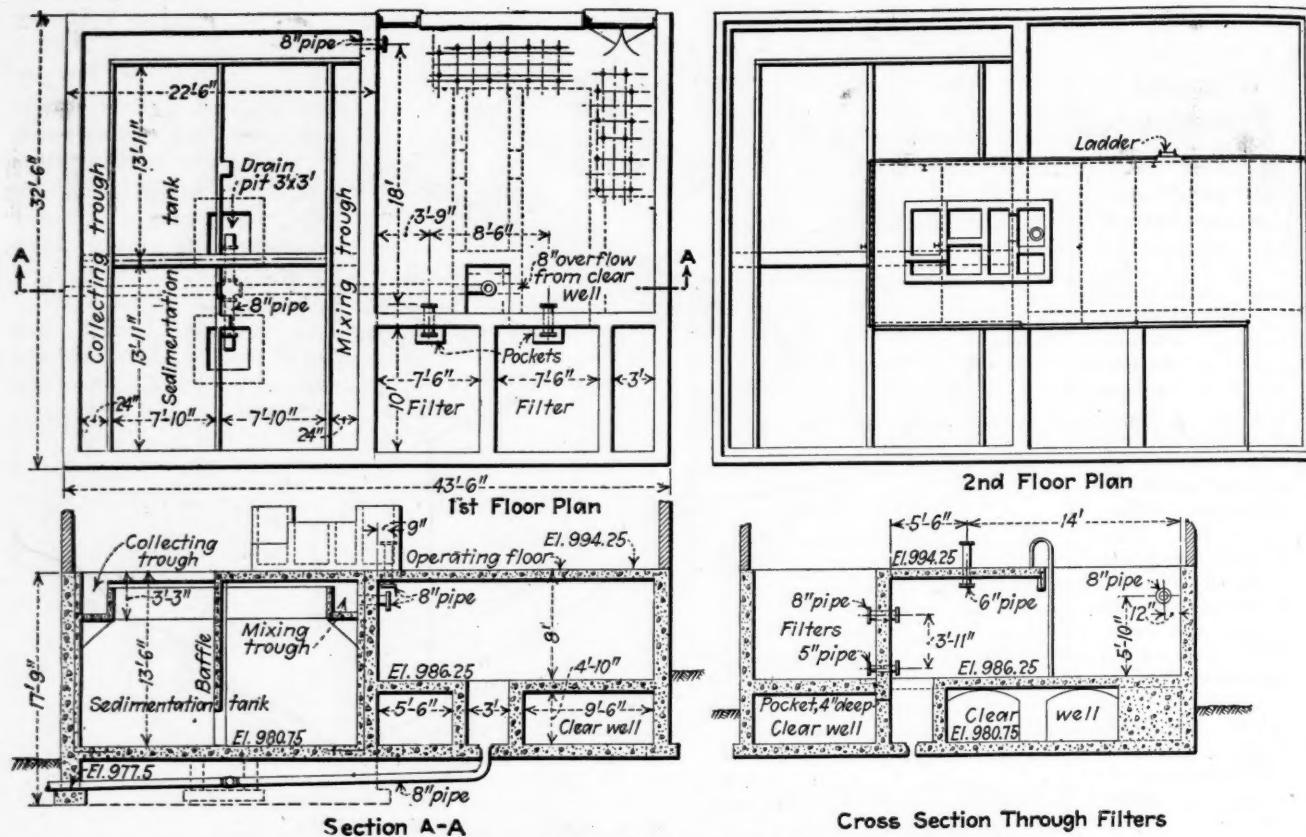
This establishes a fixed relation between the flow of

water and the introduction of the sterilizing solution, thereby removing the uncertainties of the human element in the operation of this device. The discharges occur with sufficient frequency to insure a uniform mixture of the solution introduced. The solution of the sterilizing reagent is delivered into the filtered water as it is discharged into the clear well which is located beneath the floor of the filter room.

The coagulant used is a saturated solution of alum (aluminum sulphate). This substance is fed into two dissolving tanks to which water is fed through individual adjustable weirs placed in the main weir tank.



RESERVOIR IN THE VALLEY OF HARMON CREEK AFFORDS WATER FOR MINES AND MILLS AT LANGELOTH, PA.
New reservoir holds about 3,000,000 gal. of water which is derived from mountain streams and springs. The sheet of water when the reservoir is full occupies eleven acres.



PLAN OF UPPER AND LOWER FLOORS OF FILTRATION PLANT

At the top of Section A-A can be seen the tanks in which the sterilizing reagents and the coagulants are dissolved and automatically fed to the water. The same tank can be seen in the second-floor plan near the center. These tanks appear in greater detail in another and isometric illustration.

The sedimentation tank will hold a three-hour supply of water.

These weirs are of the same shape and are placed at the same elevations as the fixed weirs previously mentioned, so that the volume of water passing through them is exactly proportioned to that flowing over the main weir. The tanks for the saturation of the coagulant are so constructed that the alum is partly submerged and the water from the adjustable weirs flows over the unsubmerged portion, then down through the tank and thence through a wood-fiber filter into a storage chamber in the bottom of the tank.

"A discharge pipe from this storage chamber is carried upward to the height required for keeping a portion of the coagulant in submergence. The height of the discharge pipe fixes the level of the solution in the tank, and the inflowing water from the adjustable weir displaces an equal volume of saturated solution. The coagulant solution is delivered into the main stream of water flowing from the main weir. To prevent this solution from crystallizing and depositing itself in the piping when exposed to the air it is diluted with a small stream of water from the weir tank which constantly flows into the discharge pipe that delivers the saturated solution.

"From the foregoing it will be noted that an exact ratio is maintained between the water being delivered to the sedimentation tank and the volume of the sterilizing and coagulant solutions, that this proportion is evenly maintained for varying rates of flow into the system without resort to the utilization of valves needing manipulation by hand. When the flow of water to the system ceases the introduction of both coagulant and sterilizing solutions is automatically stopped and the proper flow of both these reagents begins again automatically only with the flow of water to the system

when the supply pump is again put into operation."

From the clear wells located beneath the pumproom floor the filtered water is removed by one of two 8½ x 10-in. Dean pumps, the second machine being utilized as a spare. By this pump delivery is made to an elevated reservoir situated on a hilltop above the town. Each pump is driven by a 50-hp. induction motor. From the reservoir the water passes through mains by gravity to the town. The filtration plant has a capacity of approximately one-half million gallons of water per day. The dam and filtration house were constructed by the firm of Baton and Elliott, mining engineers, of Pittsburgh, Pa.

Filtration systems, like sewage-disposal plants, are necessary at many, if not most, coal-mining towns. In the past, however, they have not been installed to the extent that expediency warrants, apparently because only broad-visioned operators have realized that this form of sanitation is as necessary to the health and morale of the operating forces as are playgrounds, amusement buildings and the like. Any community and welfare program should be basically sound and sensible. This it can only be when the health and physical well-being of the mine workers and their families are given first consideration.

COAL BIDS RECEIVED by the Board of Education of Cincinnati recently showed only a small spread in prices considering the wide divergence of hauls that deliveries entail. There were thirteen firms who bid for the whole contract or parts of it. The business was divided up into five districts to allow it to be taken in whole or in part. The bids for smokeless run-of-mine were from \$7.44 to \$7.22 a ton and on bituminous the bids were: For run-of-mine, \$7.25 to \$6.98; for slack \$6.25 to \$5.72.

I have assumed, here, that the mine is generating gas in large quantities, requiring 200 cu.ft. of air per minute for each man employed in the mine.

In my 24 years of practice, I have observed a far greater waste of money expended by reason of an inefficient system of ventilation, than even that to which Mr. Walker has alluded. The disastrous explosions that have occurred in many mines known to generate large quantities of gas might have been avoided, in many instances, by a due regard for the proper ventilation of those mines.

DANGER OF EXPLOSION LESS IN MINES GENERATING CARBON DIOXIDE

In Illinois, there are many mines generating gas; but the danger, here, is often less than might be supposed, owing to the production of large quantities of carbon dioxide. But this creates another trouble. I have seen places where whole sections of a mine had to be closed for lack of fresh air.

In one instance, the company had decided to double-shift a certain section of the mine that needed a more rapid development. The air in that section was bad and, in reply to the protestations of the local committee, the mine examiner (fireboss) acknowledged that, for weeks, he had not been able to get a reading with the anemometer, as little or no air was moving in the section.

The examiner had reported the matter of the bad air in that section to the manager, at different times, and the condition was well known.

Notwithstanding the promise of the company to improve the condition, it gradually grew worse and, in the wind-up, charges were preferred by the local union against the district inspector for alleged neglect of duty in not compelling the company to furnish more air. By making this statement, I am not discrediting the mine manager (foreman), who did all he could to improve the ventilation of the section, but his efforts were in vain.

FIRST RULE OF VENTILATION MOST IMPORTANT TO OBSERVE

One of the most difficult problems in coal mining is to carry out the first rule of ventilation; namely, to supply a quantity of air at the working face that will dilute, render harmless and sweep away the gases that accumulate and make the place healthful and safe for work. As Mr. Walker has stated, this requires skill and scientific knowledge greater than that possessed by the average mine foreman or fireboss.

But, even assuming that these two officials have the necessary knowledge, it is generally the case that they have neither the time nor the means at their disposal to do what is necessary in the ventilation of a large mine generating gas. To make the ventilation efficient, the mine must be planned with a view to its adequate ventilation. The air current must be divided into a number of splits and carried anywhere from 1,000 ft. to a mile to reach the face.

HENRY BOCK.

Staunton, Ill.

Does the Uncertified Man Escape Penalty Under the Law

Reference is here made to two articles of the Bituminous Mine Law of Pennsylvania, under which the uncertified man is subject to penalty for any violation of his duties as a mine official.

REFERRING to a question raised by an inquirer in *Coal Age*, Feb. 3, p. 234, as to whether uncertified mine officials are subject to the same penalties as the law imposes on certified men, permit me to express the opinion that the penalties prescribed in the law for violation of duties apply alike to all mine officials, without respect to their certification.

Because of the seeming absence of any direct reference in the law to the penalization of *uncertified* officials for violation of the law, this inquirer seems to think that an uncertified official is immune from punishment, and that the worst that can befall him is the loss of his position.

LAW PROVIDES FOR PUNISHMENT OF ALL OFFENDERS

Careful consideration of the law and a study of the annual reports of the Chief of the Department of Mines, in Pennsylvania, convinces me that no offender against the law can go scot-free if his offense is reported to the proper authorities and he is haled before a court and proven guilty of violating the statute.

While our mining reports show the prosecution of mine officials, for neglect of duty in and about mines, it is not possible to ascertain from these records whether the persons held certificates of competency or were uncertified, serving in their capacity as being "equally competent" with certified men. To my mind this is unimportant, however, as I believe the law makes no distinction between a certified and an uncertified mine official.

That the bituminous law is specific in respect to providing stated penalties for violation of its requirements, whether committed by officials or by workmen, appears to be plainly indicated by the several sections of the law quoted by the inquirer to whom I have referred.

FURTHER REFERENCES QUOTED

After quoting the three references in the law that permit the employment of uncertified men as mine foremen, assistant foremen or firebosses, provided the employer regards them as "equally competent" with certified men, the inquirer quotes Art. 3, Sec. 7, which provides for the withdrawal of a man's certificate when he is found guilty of violating the law through neglect of his duties in the mine.

Now, in addition to these references, I desire to draw his attention to Art. 5, Sec. 6 of the law, which reads as follows:

Any fireboss who neglects to comply with the provisions of this article relating to his duties . . . shall be deemed guilty of a misdemeanor and shall be sus-

pended by the mine foreman and his name shall be given to the inspector for prosecution. If he is found guilty he shall return his certificate and qualification as fireboss to the Department of Mines.

While it is clear that this section, like Sec. 7 of Art. 3, applies only to a certified fireboss who is found guilty of violating the law in the performance of his duties in the mine, there is yet another section of the law that is still broader and imposes a penalty on any person who is found guilty of violating the law's requirements. I believe it reaches all violators, regardless of whether they are certified or uncertified, and whether or not they are acting in an official capacity. For instance, Art. 26, Sec. 2, reads as follows:

Any person who neglects or refuses to perform the duties required of him by this act, or who violates any of the provisions or requirements thereof, shall be deemed guilty of a misdemeanor and shall, upon conviction thereof, in the Court of Quarter Sessions of the County in which the misdemeanor was committed, be punished by a fine not exceeding two hundred dollars, or imprisonment in the county jail for a period not exceeding three months, or both, at the discretion of the court. Any violation of this act which has been declared to be a misdemeanor by any part thereof shall be punished in like manner.

It is true that this section of the law gives the court a fairly wide latitude in determining the degree of the offense and the extent of the penalty to be imposed. At the same time, it cannot be denied that, notwithstanding this flexibility, it does provide a penalty regardless of the violator being a certified or an uncertified official, or merely a mine worker acting in no official capacity.

MANY RECORDS OF PENALTIES IMPOSED FOR VIOLATIONS OF LAW

The fact that all mine workers are subject to penalty for neglect of duty or other violations of the law's requirements can be readily verified by reference to the annual reports of the Department of Mines. In them will be found records of the violations of law and the penalties imposed, ranging from a severe reprimand to the payment of costs and fines and possible imprisonment, including the loss of the certificate held by the transgressor.

It is interesting to note that the list of violators' names, in these reports, includes operators, superintendents, mine foremen, assistant foremen, firebosses, shotfirers, pumpmen, shifthands and miners. The record shows that no individual in the mine is exempt from punishment when the misdemeanor with which he is charged is proven before the proper authorities.

The inference to be drawn from the penalty, prescribed in the law, of the withdrawal of the certificate of a man found guilty of any violation, is that such certified men no longer come under the category of competent mine foremen who are capable of efficient service in promoting the health and safety of employees and protecting mine property.

It is further implied that the violator no longer possesses those qualifications

of character that the law requires and which are demanded by the general public as a guarantee of their fitness to hold positions of trust and responsibility. The recall of the certificate by the court reduces the certified man to the level of an ordinary workman.

The certified man naturally becomes the greater loser, by the forfeit of this certificate; but both are liable to the same penalty for their offense, depending wholly on the degree to which they have violated the law in the determination of the court. If awarded the maximum penalty it is highly improbable that either of these men would be permitted to appear before an examining board, later, without being able to give satisfactory evidence that they had reformed.

ALEXANDER WAUGH.

Finleyville, Pa.

Engine Plane Haulage

Correcting a previous misstatement regarding the load on the haulage rope when a four-car trip has reached the steep incline at the head of an engine plane.

KINDLY permit me to draw attention to an error in the last paragraph of the reply to my inquiry on haulage, *Coal Age*, Mar. 31, p. 586. It is quite evident that when the 4-car trip has reached the steep incline having a grade of 36 per cent, assuming a track resistance of 30 lb. per ton and the grade resistance being 20 lb. per ton for each per cent of grade, the total resistance per ton for that grade is $36 \times 20 + 30 = 750$ lb instead of 370 lb. per ton, which was the estimate for the 17 per cent grade.

This would make the total load on the rope on the steep grade when hauling a four-car trip of 40,000 lb., or 20 tons, $(20 \times 750) \div 2,000 = 7.5$ tons. While this is below the allowable working stress of a 1½-in. cast-steel, haulage rope, previously estimated as 8 tons, it appears that the load on the coupling between the first and second cars is greater than the estimated strength of the ½-in. wrought-iron coupling, estimated to have a working stress of 4.4 tons.

For example, the weight of the three cars supported by this coupling is $3 \times 5 = 15$ tons; and the load on the coupling is therefore $(15 \times 750) \div 2,000 = 5.6$ tons. It will be necessary, therefore, in that case to use 1-in. wrought-iron couplings having a working stress of 6 tons, if I am correct.

Plains, Pa. RICHARD BOWEN.

[We are glad Mr. Bowen has drawn attention to this inadvertence in respect to the steep grade at the head of the incline. In this connection it should be stated that track and grade resistances estimated in pounds per ton refer to the normal pressure of the load on the track, which varies with the cosine of the grade angle. The angle corresponding to a 36 per cent grade is that whose tangent is 0.36, or $19^\circ 48'$; and its cosine is 0.94088.

In this case, therefore, the normal pressure of a four-car trip, weighing $4 \times 5 = 20$ tons, on the steep grade is $20 \times 0.94 = 18.8$ tons. The load on the rope is then $(18.8 \times 750) \div 2,000 = 7$ tons. This is less than the safe working stress of a 1½-in. rope which was previously estimated and is given in rope tables as 8 tons.

But the load on the first coupling supporting three cars weighing $3 \times 5 = 15$ tons, is $(15 \times 0.94 \times 750) \div 2,000 = 5.3$ tons and the safe working stress of ½-in. wrought-iron coupling is only $6(\frac{1}{2})^2 = 4.59$ tons. It will, therefore, be necessary to use 1-in. couplings having a safe working stress of $6 \times 1^2 = 6$ tons.—EDITOR]

Inquiries Of General Interest

Robbing Pillars with Machines

To Insure Greater Safety of the Men and a More Complete Extraction of the Coal in the Retreating Plan of Mining Should the Pillars Be Cut on the Inby or the Outby Rib?

LOOKING over the back numbers of *Coal Age* a short time since, I came upon an examination question that asked for the best method of extracting pillars by machine, under ordinary conditions of roof and floor. (Vol. 1, p. 981.) Kindly permit me to offer a few comments in criticism of the method suggested in answer to this question.

In that reply, as shown in Fig. 1, the butt headings are driven to the bound-

Then, when the work of drawing the pillars is started and the fracture line established about as shown in both Figs. 1 and 2, the machinemen will be protected by the solid coal behind them.

In comparing these two methods, it will be seen that the plan shown in Fig. 1 necessitates the cut being made on the inby side of the pillar where the men are exposed to the falling roof behind them. This, I believe, is wrong, as

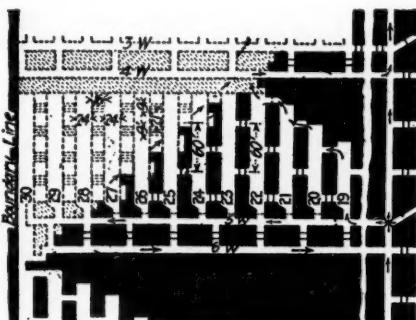


FIG. 1. MACHINE STARTS TO CUT ON INBY RIB OF PILLAR

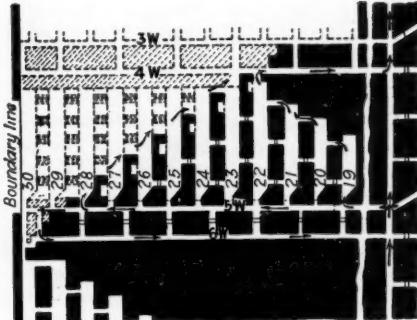


FIG. 2. MACHINE CUT STARTED ON OUTBY RIB OF PILLAR

ary line and the extraction of the coal is on the retreating plan, which is, of course, correct. The rooms however, are shown as widened on the inby side or to the left, while the track and straight rib are on the right. The machine cut is then started in the straight rib at the side of the track, which is the inby rib of the pillar.

This, it seems to me, is contrary to the usual method of procedure. My suggestion is that the rooms should be widened outby or to the right, leaving the straight rib and track on the inby side of the room to the left. The machine cut will then be made in the outby rib of the pillar, in which position the men will be fully protected.

To make my meaning more clear and for the sake of comparison I have prepared a duplicate sketch (Fig. 2), showing the rooms widened outby and the track and straight rib on the left, which I believe is the more common practice.

their only protection would be the timbers behind them and the stump of coal 9 or 10 ft. thick, in the end of the pillar, beyond the cut made by the machine.

It is possible that I do not understand the conditions fully; but, as this method of drawing the pillars does not accord with our practice here, I would like to see the two methods discussed in *Coal Age*, keeping in view both the safety of the men and the complete extraction of the coal.

It is understood, of course, that as each room reaches the limit it is driven through the chain pillar to the air-course above, which provides for the circulation of the air around the pillar. The work of drawing back the pillars is then started, say 3 or 4 yards back, by cutting through the pillar with machines a width of 6 or 7 yards.

After cutting through the pillar with the machine, the stub of coal remaining is removed by the pick. I may say that

we are working under a 1,200-ft. cover and it is very often that all of the stumps butted off by the crosscut is recovered with the pick, notwithstanding this heavy roof pressure. In my opinion, it would be impossible to adopt the method shown in Fig. 1 and I shall be glad to hear from others.

J. D. ROGERS,
Chief Engineer,
Stonega Coke & Coal Co.
Big Stone Gap, Va.

We are glad to see this proposition brought forward for discussion. The question assumes ordinary conditions of mining with respect to roof and floor, and it may be taken as referring to seams having little or no inclination.

Assuming that the retreating plan is adopted and the butt headings driven to the boundary line before any rooms are turned, the question is, which is the better plan to adopt, keeping in mind the safety of the men and the complete extraction of the coal? Should the rooms be widened inby and the cut

started on the inby rib of the pillar, as shown in Fig. 1, or should the work proceed as shown in Fig. 2?

Proceeding as in Fig. 1, it is true that the machine men have the gob behind them and are protected only by the timbers or posts set behind them and the entry stub on their left. This, however, is far better protection than is often possible in the work of drawing back the pillars when cutting the end of the pillars with machines or with the pick.

On the other hand, by adopting the method shown in Fig. 2 while the men are afforded somewhat better protection while cutting through the pillar, it is a serious question whether they will be as well protected in taking out the stump of coal with the pick, as in the first method. It is also doubtful if the second method will afford as complete an extraction of the remaining stump as is possible in the first method. This is a good question for discussion and we hope will receive the attention from *Coal Age* readers it demands.

$\times 0.53 = 191.86$ ft. The anthracite law requires a mine map to be drawn to scale of 100 ft. to the inch, which would make the length of this breast, say 1.92 in., on the mine map.

QUESTION—What method would you adopt for obtaining a large amount of air with but a small water gage?

ANSWER—To obtain a large volume of air under a small water gage or unit pressure, in a given mine or airway, it is necessary to increase the area of passage of the ventilating current through the mine, and thereby reduce the velocity of the current to a minimum. This is accomplished by splitting the air current one or more times.

QUESTION—An airway 12 ft. wide at the bottom, 10 ft. wide at the top and 6 ft. high has a velocity of 340 ft. per min.; what is the sectional area of the airway and the quantity of air passing per minute?

ANSWER—The average width of this airway is $\frac{1}{2}(10 + 12) = 11$ ft.; and its sectional area $6 \times 11 = 66$ sq.ft. Assuming the velocity given is an average for the entire cross-section of the airway, the volume of air passing is $340 \times 66 = 22,440$ cu.ft. per min.

QUESTION—A pump at the bottom of a slope 450 ft. long, on an angle of 35 deg., throws the water to the surface through a column pipe 8 in. in diameter; what is the pressure per square inch on the pump?

ANSWER—The vertical rise of this slope is $450 \times \sin 35^\circ = 450 \times 0.57358 = 258+$ ft.; and allowing, say 7 ft. for suction, the discharge head is 265 ft. and the static pressure $265 \times 0.434 = 115$ lb. per sq.in.

When the pump is in operation, however, it is necessary to add to the static the sum of the friction and velocity heads. Estimating on a velocity of 400 ft. per min. in the discharge pipe, which is customary in mining practice, the friction head is equal to the length of the discharge pipe, in feet, divided by three times its diameter, in inches; or in this case, $450 \div 3 \times 8 = 18\frac{1}{3}$ ft. The velocity head is $V^2/2g = (400/60)^2 \div 64.32 = 0.69$, say $\frac{2}{3}$ ft.; and the sum of these is $18\frac{1}{3} + \frac{2}{3} = 19\frac{1}{3}$, say 20 ft.

The total effective head on the pump, therefore, when it is in operation is 265 + 20 = 285 ft. The pressure due to this effective is $285 \times 0.434 = 123.69$ lb. per sq.in.

QUESTION—A train of cars with its load weighs 8,570 lb., what is the load on the rope when hoisting on a slope pitching 32 deg.?

ANSWER—The load on the hoisting rope is the sum of the track and grade resistances estimated on the normal pressure of the load on the incline, which is $8,570 \times \cos 32^\circ = 8,570 \times 0.848 = 7,267+$ lb., say 3.6 tons.

Assuming a track resistance of, say, 25 lb. per ton, the grade resistance per ton, for this grade, being $20 \times 32 = 640$ lb., the total resistance is $640 + 25 = 665$ lb. per ton of normal pressure. The load on the rope is, therefore, $3.6 \times 665 = 2,394$, say 2,400 lb.

Examination Questions Answered

Miscellaneous Questions Asked at Anthracite Examinations

(Answered by Request)

QUESTION—What mechanical equipment in and about the mines is entirely under the charge and care of the mine foreman?

ANSWER—The Anthracite Mine Law, Art. 12, Rule 3, gives the mine foreman the entire charge of all matters pertaining to the ventilation of the mine. This places all equipment used in producing, conducting and distributing the air currents in the mine, wholly under the control of the foreman, and includes all ventilators of every description, doors, air bridges, regulators, brattices, etc.

QUESTION—What is the rubbing surface of a road 8 ft. 6 in. wide, by 6 ft. 9 in. high and 3,000 ft. long?

ANSWER—The perimeter of this road is $2(8.5 + 6.75) = 30.5$ ft. Then, the rubbing surface of the airway is $3,000 \times 30.5 = 91,500$ sq.ft.

QUESTION—What are safety blocks? Where are they required and how are they to be maintained? When shall traffic be suspended on a gravity plane?

ANSWER—A safety block is a block used to obstruct a road, so as to prevent the passage of a car on the track. They are required at the head of a shaft, slope or incline plane. Care must be taken to keep such blocks in good working order. The anthracite law provides that all traffic must cease on any slope or plane, whenever ten persons have arrived at the head or the

bottom of the incline, and it is necessary for them to pass up or down the plane on their way out or into the mine.

QUESTION—What percentage of gas (CH_4) in a mine atmosphere makes it explosive; and what percentage of carbonic acid gas (CO_2) makes an explosive mixture non-explosive?

ANSWER—The percentage of pure methane (CH_4) that will render pure air explosive is commonly taken as 7.14 per cent, or when the proportion of gas to air is 1:13, which is called the lower explosive limit of the gas. This answer refers only to pure air and the absence of other gases. With a less percentage of gas in air the mixture is inflammable but not explosive.

When a firedamp mixture is at its maximum explosive point it is estimated that one-seventh of its volume of carbonic acid gas (carbon dioxide, CO_2) will render the mixture non-explosive.

QUESTION—A breast is driven up a distance of 362 ft. on a pitch of 58 deg.; what is the vertical height at the face of the breast, and what distance will it show on the map or mine tracing plotted according to law?

ANSWER—The vertical height or rise at the face of this breast is $362 \times \sin 58^\circ = 362 \times 0.848 =$ say 307 ft.

The horizontal distance corresponding to a measurement of 362 ft. on a pitch of 58 deg. is $362 \times \cos 58^\circ = 362$

Regrouping of Administrative Units Prescribed for Elimination of Waste in Government

Inefficiency, Palpable to American Engineers for Many Years, Brought Glaringly to Light by the War—Reorganization Must Be Directed to Averting Overlapping of Functions — Support of Public Opinion Indispensable to Results

BY HERBERT HOOVER*

HERE is one problem of the new administration that has received the attention and thought of the organized engineers of America for many years past. This is the problem of the reorganization of the federal government. The inadequacy, the wastefulness, and the inefficiency of our federal organization was evident enough under pre-war conditions. These inadequacies, these inefficiencies, these wastes were exhibited to the country during the war at the cost of millions.

Congress has placed the problem in the hands of a very able congressional joint committee. But if this joint committee succeeds in securing the imminently necessary results it will only be by full insistent support to it by public opinion. Many attempts have been made at reorganization before, but all of them have gone to the same crematory—the interminable differences in opinion among the executive and legislative officials over details.

To any student of federal organization one sweeping and fundamental necessity stands out above all others, and that is that the administrative units of the government must be regrouped so as to give each of the great departments more nearly a single purpose. The hodge-podge of aims in certain administrative branches is scarcely believable when we consider our national pride and skill in organization. Such functions as public domain, public works, assistance to veterans, public health functions, aids to navigation, to industry, to trade, purchasing of major supplies, are each and every one scattered over from four to eight departments, most of which are devoted to some other major purpose.

ECONOMY POSSIBLE BY UNIFICATION OF EFFORT

Economies can be accomplished from a public point of view by an elimination of the overlap in these different units of administration through unification into groups of similar purpose. The real economy to the nation, however, does not lie here, however great this may be, but it lies in their more effective functioning in their daily relation to the public. The extra cost imposed upon business in general in the determination of the relation of any particular business to the different functions of the government, with the unnecessarily duplicating interferences and demands, is a real charge on national wealth, probably as great in some directions as the actual costs of the administrations themselves.

Of equal importance with economy is to secure effective concentration of government effort into service to the community. No constructive vision or policies can be built around a national service directed by from two to ten Cabinet members, more especially when this particular purpose is a side issue to all of them. No better example of this exists than the deplorable handling of our relations to our veterans.

There are other reasons that render reorganization imperative. The changed economic situation of the world demands that the functions of the government in aid to commerce and industry be given more concentration and wider scope.

The enlarged activities of the government as a result of the war greatly affect certain departments. The Treasury today as the fiscal office of the government must handle an

annual budget of \$5,000,000,000 as compared with \$1,000,000,000 pre-war. Activities of the army have increased from a budget of \$200,000,000 to \$400,000,000; activities of the navy have increased from a budget of \$125,000,000 to \$425,000,000. Thus the burden and responsibilities for the major purposes of these departments have been enormously increased. I believe it is the consensus of opinion of the gentlemen conducting these departments that in the interests of efficiency they should not be called to responsibility for the administration of at least some of the matters not pertinent to their major functions which clutter their departments.

ADVISORY BODIES ASSUME EXECUTIVE FUNCTIONS

We have also some confusion between executive, advisory, and semi-judicial functions. One of the tendencies of government, both local and national, during the last twenty years has been to add executive functions to commissions and boards created primarily for advisory or regulatory purposes. It requires no argument with our business public that the executive functions cannot rise to high efficiency in the hands of government boards where from the very nature of things each member has a separate responsibility to the public and is primarily engaged in a semi-judicial function.

Furthermore, during the last few years there has been a great growth of independent agencies in the government reporting directly to the President until his office is overburdened almost beyond the point of endurance. The original and sound conception was that the executive functions should be reported up to the President directly through his Cabinet officials. Not only do these outside functions today overburden the President but they render co-ordination with executive departments extremely difficult. It is neither possible nor advisable to place all these outside organizations into the departments, but much could be done to mitigate the situation.

One of the great steps in federal reorganization is the erection of a budget system, with its necessary reorganization of the congressional committees. There can be no doubt as to the early accomplishment of this great reform, but it will not serve its real purpose until the departments have been reorganized so that they represent a common purpose. Without this Congress will never have before it budgets showing the expenditure of the government in its relation to any particular function.

HARDY MARINER SUBJECTED TO SORE TRIAL

I have daily evidence in the Department of Commerce of all these forces. The question of governmental aids to navigation is not by any means one of the principal functions of our government, but it must be a sore trial to the hardy mariner. He must obtain his domestic charts from the Department of Commerce, his foreign charts from the Navy Department, and his nautical almanac from the Naval Observatory—and he will in some circumstances get sailing directions from the army. In a fog he may get radio signals from both the Navy and Commerce and listen to fog-horns and look for lights and buoys provided him by Commerce; if he sinks his life is saved by the Treasury. He will anchor at the direction of the army, who rely upon the Treasury to enforce their will. His boilers and life-boats are inspected by the Department of Commerce; his crew is

*Address delivered before Philadelphia Engineering Club, April 16, 1921.

certificated by one bureau in Commerce, signed off in the presence of another, and inspected at sailing by the Treasury, and on arrival by the Department of Labor.

It is possible to relate the same sort of story in our governmental relations to industry and to our domestic and foreign commerce.

The moral of all this is that economy could be made by placing most of these functions under one head, not only economy to the government but to the mariner. Congress would know what it spends in aid to navigation and the government could develop definite policies in giving proper assistance, and lastly could remove from the hardy mariner's mind his well-founded contempt for the government as a business organization.

The economic changes in the world growing out of the war and their reflex upon our trade and industry make it vital, if we are to maintain our standards of living against increasing ferocity of competition, that we shall concentrate and enlarge our national effort in the aid, protection, stimulation and perfection of our industrial and commercial life. There can be no real Department of Commerce or commercial policies to these broad purposes so long as the instrumentalities of the government bearing on these questions lie in half a dozen departments.

We want no paternalism in government. We do need in government aids to business in a collective sense. In a department we do not want either to engage in business or to regulate business. We need a department that can give prompt and accurate diagnosis from both a foreign and domestic point of view of economic events, of economic tendencies, of economic ills; that can promptly and accurately survey economic opportunity, economic discrimination and opposition; that can give scientific advice and assistance and stability to industry in furnishing it with prompt and accurate data upon production, supplies and consumption; that can co-operate with it in finding standards and simplifications; that can by broad study promote national conservation in industry and the elimination of waste; that can study and ventilate the commercial side of our power possibilities; that can study and advise national policies in development of rail, water, and overseas transportation; that, in fact, covers, so far as government functions can cover, the broad commercial problems of trade, industry, and transportation. This can be accomplished more by co-ordination of existing governmental facilities than by increased expenditures.

Herbert Hoover Resigns Engineering Presidency; Industrial Waste Report in June

HERBERT HOOVER has resigned as president of American Engineering Council of the Federated American Engineering Societies. His resignation was submitted and accepted as the closing action of the sessions of the council held April 16 at the Engineers Club of Philadelphia.

Mr. Hoover gave as his reason the fact that American Engineering Council by its constitution was necessarily engaged in furthering national activities which involve legislation; and that he as a member of the executive branch of the government could not consistently direct such activity as an officer of American Engineering Council.

The council, in a resolution of regret at Mr. Hoover's retirement, voted its appreciation of Mr. Hoover's leadership during the organization period of the council and his initiation of policies and effort.

The meeting of the council was one of the most important yet held.

One of the most important matters before the council was the report of the Committee on Elimination of Waste in Industry, of which J. Parke Channing is chairman and L. W. Wallace, executive secretary of the council, vice chairman. The committee has been conducting an assay of waste in principal industries for more than three months under the direction of Mr. Wallace. The work has been conducted from the temporary headquarters in New York. The first reports of the assay will be ready in June. These reports are being put into final form at the permanent offices of the council in Washington, 719 Fifteenth Street.

The next meeting of the Council will be held in St. Louis

June 3. This meeting probably will be the most important yet held by the society. It will synchronize with the report on the waste assay and will mark another progressive stage in the work of organization. For the intervening period Mr. Wallace and his associates have mapped out a vigorous campaign of constructive effort.

American Engineers Will Confer John Fritz Medal on Sir Robert Hadfield in London

TO EXPRESS the obligation which the world owes to the engineers of Great Britain for the part they played in winning the war the organized engineers of America will send a mission to London this summer. This mission, consisting of nationally known engineers and representing the so-called Founder Societies of the Federated American Engineering Societies, will make the award of the John Fritz medal to Sir Robert Hadfield at the opening meeting of the British Institution of Civil Engineers on June 29. The inability of Sir Robert to come to the United States to receive the medal moved the trustees of the board to make the ceremony of presentation in England the occasion for an international expression of appreciation by the engineers of the United States to the engineers of Great Britain.

The deputation to England will consist of a representative of each of the four Founder Societies represented on the John Fritz Medal Board of Award, as follows: Charles T. Main, of Boston, the American Society of Civil Engineers; Colonel Arthur S. Dwight, of New York, the American Institute of Mining and Metallurgical Engineers; Ambrose Swasey, of Cleveland, the John Fritz Medal Board of Award and the American Society of Mechanical Engineers; Dr. F. B. Jewett, of New York, the American Institute of Electrical Engineers. Dr. Ira N. Hollis, president of Worcester Polytechnic Institute and past president of the American Society of Mechanical Engineers, will accompany the deputation and bear the message from the American engineers.

The John Fritz medal is a gold medal presented for achievement in applied science as a memorial to the engineer whose name it bears. Previous recipients of the medal have been John Fritz, Lord Kelvin, George Westinghouse, Alexander Graham Bell, Thomas Alva Edison, Charles Talbot Porter, Alfred Nobel, Sir William Henry White, Robert Woolston Hunt, John Edson Sweet, James Douglas, Elihu Thomson and Henry Marion Howe.

The medal is awarded to Sir Robert Hadfield this year because of his invention of manganese steel. The medal was established by the professional associates and friends of John Fritz, of Bethlehem, Pa., on Aug. 21, 1902, his eightieth birthday, to perpetuate the memory of his achievements in industrial progress. There are no restrictions on account of nationality or sex. The trust funds supporting the medal are held and administered by a board of sixteen directors, consisting of four from each of the four national engineering societies represented on the mission to England.

Idle Freight Cars Continue to Increase; Unused Coal Cars Most Numerous

PREVIOUS records for the number of surplus or idle freight cars on the railroads of the United States were again broken during the week ending April 8, according to reports compiled by the car service division of the American Railway Association. The number of cars for which there was no freight averaged 507,427, or approximately 21 per cent of the total freight cars owned by the railroads of the United States. This is an increase of over 11,000 cars as compared with the previous week and an increase of 210,000 cars since the first of the year. Of the total number of idle cars 261,294 were coal cars, an increase of about 6,000 cars in a week, while there were 176,916 surplus box cars, an increase in a week of 5,000.

At the time of the business depression in 1919, following the armistice, the number of surplus freight cars reached 451,739 for one week of March.

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

AN INDICATION that business conditions throughout the country are getting better is found in the fact that the volume of distribution by jobbers and retailers showed a distinct gain in March over February, says Archer Wall Douglas, chairman of the Committee on Statistics and Standards of the Chamber of Commerce of the United States. Mr. Douglas reports at length on the business situation in the May number of *The Nation's Business*. The whole tone of the report is optimistic. He points out many signs as indicative of an improvement in the situation and as tending to foreshadow a return to more settled and stable conditions. Some of the most striking points in Mr. Douglas' report are:

"The most significant, and possibly most cheering feature of the situation is that the automobile business seems to have been not dead but sleeping. There is a resumption of operations in a modest way by some factories which were shut down.

"There is a better demand for lumber and prepared roofing and paint because of somewhat more building and construction. There is more building going on in the cities than in the country, and there will not be much construction of any description on the farms until another harvest has shown the farmer where he stands.

"Manufacturing is running mostly on short time. In the shoe trade the demand for women's shoes is much better proportionately than for men's footwear.

"Excessively high railroad rates are one of the serious handicaps of the situation, while they likewise fail in their original purpose of providing adequate revenue for the roads. They are prohibitory in their effects. In some cases, especially those of early fruits and vegetables from the far South to Northern and Western markets, the cost of transportation is from four to five times the price received by the producer.

"Winter wheat is in unusually fine condition. There will be much less cotton acreage planted this year than last. The crop will receive less fertilizer than last season, but much greater intensive cultivation. There will be more of a diversified crop in the South this year. The farmer is economizing as he has never done before. He is making greater use of the horse, and leaving the automobile in the barn. But while he is economizing on some things he is also buying somewhat more freely, especially the farmer in the grain regions. This is a healthy sign, for the genuine beginning of better times is likely to come from agricultural rather than industrial life."

Velvet Weavers End Strike

A weavers' strike at the American Velvet Co.'s mill, Stonington, Conn., which has made 500 persons who received \$37,000 a month idle since Dec. 28, ended April 15. The grievance was over operating looms and a conference on the latter date found a basis for compromise.

\$4,000,000 Glass Company Formed

Incorporated with a capitalization of \$4,000,000 under Ohio laws, the United States Sheet & Window

Glass Co. proposes building extensive additions to its manufacturing plant at Morgantown, W. Va. The new organization has another plant at Shreveport, La. It operates its works under the patents of the Libby-Owen interests.

Boston & Albany Shops Reopen

The West Springfield (Mass.) locomotive shops of the Boston & Albany Railroad, employing 435 men, reopened April 25 after a month shutdown.

Ford Plant Nearing Normal

By May 1 the Ford Motor Car Co. plant at Highland Park, near Detroit, will be running at normal capacity, an official stated April 20. Approximately 37,000 men are now at work, according to payroll figures. Hundreds more will be added daily until the full quota is reached, it is stated. Monday and Tuesday, April 18 and 19, six hundred men were added and 500 more went to work April 20. The plant is producing about 4,000 cars a day, this official said, and expects to reach the former high mark of 5,000 daily within a few weeks. More than 100,000 unfilled orders are on hand.

Bigelow Carpet Mills Resume

Officials of the Bigelow-Hartford Carpet Co. reported that the mills at Thompsonville, Conn., were working April 19 with nearly full forces in all departments. The plant had been closed since Feb. 28 as a result of a strike of the organized employees in three departments of the factory. The company's unorganized employees number about 1,300, and the organized men number about 1,200.

Farr Alpaca Co. on Full Time

Announcement was made Monday, April 18, that the Farr Alpaca Co., Holyoke, Mass., employing 2,700 operatives, had resumed full-time operation in all mills. One mill had been running full time for two weeks and the other two had been running four days a week. The concern is one of the largest in Holyoke.

Rubber Co. Will Reopen on May 9

The Alice Mill of the Woonsocket Rubber Co., a branch of the United States Rubber Co.'s footwear division, at Woonsocket, R. I., will reopen in part on May 9, after having been closed nearly three months, officials announced April 18. A five-day week with 1,200 of the normal force of 1,800 persons employed is planned.

Tire Fabric Plant Hums Again

The New Bedford Spinning Co., closed for the last six months, resumed operations Wednesday morning, April 20, on a weekly schedule of forty-eight hours. The plant has 25,000 spindles and employs 300 hands, engaged chiefly in the manufacture of tire yarns.

Sixteen Hot Mills to Start

Sixteen hot mills of the Farrell works of the American Sheet & Tin Plate Co., at Sharon, Pa., will be put in operation May 2, Superintendent Thomas O'Brien has announced. More than 1,000 men are employed at the plants, which are half the mills of the Farrell works.

Cleveland Municipal Light Plant, Receiving Coal Bids, Insists on 100 Per Cent Delivery

BIDS were opened April 14 for supplying the city of Cleveland municipal light plant with the following amounts of coal: (1) For a period of one year, 108,000 net tons; (2) for a period of nine months, 81,000 net tons; (3) for a period of six months, 54,000 net tons.

Specifications provided for a 100 per cent performance

of contract, regardless of strikes, walkouts or any other interruptions, the city to bill contractor with the difference between prices paid and contract figures, should failure of the seller to deliver make it necessary that any purchases be made in the open market. The bids submitted were as follows:

Company	— Item No. 1 —			— Item No. 2 —			— Item No. 3 —			Kind of Coal	Mine or Mines	Location	Per Cent
	F.o.b. Mines	Frt.	Del'd	F.o.b. Mines	Frt.	Del'd	F.o.b. Mines	Frt.	Del'd				
A. F. Baier Coal Co.	327	161	488	320	161	481	N.&S. or Cr. R.M.	Grant M. Barren Fork	Salineville, O.	100			
Verner Coal & Coke Co. 274	205	479	270	205	475	260	N.&S.	Verner M.	Barren Fork, Ky.				
310	205	515	298	205	503	290	Cr. R.M.	Ferguson	Bulger, Pa.	50-100			
250	189	439	245	189	434	240	Cr. R.M.	Tasa Mine	Cliftonville, W. Va.	50-100			
Myers Coal & Coke Co. 322	161	483	312	161	473	292	N.&S. or Cr. R.M.	Kirk Mine	Hurford, O.	100			
Maher Collieries Co.	225	189	414	225	189	414	N.&S. or Cr. R.M.	Nos. 1-2-3	Salineville, O.				
225	189	414	N.&S. or Cr. R.M.	No. 5	Stewartsville, O.								
225	189	414	N.&S. or Cr. R.M.	No. 6	Neffs, O.								
225	189	414	N.&S. or Cr. R.M.	Nos. 7-9-10	Willow Grove, O.								
225	189	414	N.&S. or Cr. R.M.	No. 12	Maynard, O.								
A. Geo. Enos Coal Co.	314	161	475	300	161	461	N.&S. or Cr. R.M.	Strabley No. 1	Salineville, O.				
314	161	475	300	161	461	Cr. R.M.	Mullens No. 2	New Phila., O.					
275	189	464	275	189	464	N.&S. or Cr. R.M.	Oes Mine	Lafferty, O.	As re- quired	150 privately owned cars in conjunction with waterworks contract.			
275	189	464	275	189	464	N.&S. or Cr. R.M.	Lucy Mine	Stewartsville, O.					
275	274	549	275	274	549	N.&S. or Cr. R.M.	Kelly Crk.	Ward, W. Va.					
275	203	478	275	203	478	N.&S. or Cr. R.M.	Elm Grove	Elm Grove, W. Va.					

Tax Provided by Anthracite Bill Reduced; Measure Passes Lower House

FOLLOWING a hearing on Governor Sproul's bill to tax anthracite at the mine, held before the House Ways and Means Committee in Harrisburg, Pa., Wednesday, April 11, Representative Dawson, of Lackawanna, chairman of the committee, obtained the Governor's assent to the introduction of several amendments to remove some of the objections raised.

As altered, the bill cuts the tax from 2½ per cent to 1½ per cent and permits passing this tax to the consumer. There has been no change regarding exemption of coal used at the mines, but it is held that this coal is exempt under the original language of the bill.

Speakers for the operators at the hearing, held Wednesday, April 13, were W. S. Jenney, of the Delaware, Lackawanna & Western R.R. Co., and W. H. Williams, vice-president of the Hudson Coal Co. They were supported by Wellington Bertolet, representing state and national retailers, and Mark K. Edgar, secretary of the Scranton Board of Trade.

Mr. Jenney said the tax would cost his company \$1,000,000 a year and the bill would open the way for further legislation to tax the anthracite companies out of existence. He referred to Governor Sproul's suggestion of taxing both bituminous coal and anthracite, because any other plan would be unconstitutional, and he contended this was evidence the proposed bill was unconstitutional. Mr. Williams said that his company is now paying taxes of about \$1,400,000 a year and the annual profit does not average more than 8 per cent.

On Wednesday, April 20, the bill passed the lower house of the Pennsylvania Legislature by a vote of 125 to 63.

The measure was opposed by Assemblymen from the anthracite coal regions, who declared it would impose an unjust tax on one of the chief industries of the commonwealth.

Mr. Williams, Tioga, sponsor of the bill, said it was time the state was getting a return in revenue from its natural resources. He emphasized the fact that but 25 per cent of the tax proposed would fall upon citizens of Pennsylvania,

inasmuch as the greater amount of the output is shipped outside the State, and the burden of the tax would fall upon non-residents.

Railroads' Coal Cost \$641,224,469 in 1920, Compared with \$390,036,556 in 1919

CHARGES of profiteering in coal do not seem to be borne out by a report of the Interstate Commerce Commission to the Senate giving cost of fuel to railroads in 1920, compared with 1919. The report shows that the delivered cost of bituminous coal for the country as a whole was \$3.15 in 1919 per net ton and \$4.13 in 1920, an increase of 98c. a ton. There was an increase of 66c. per ton for contract coal and \$1.70 for spot coal at the mines. The increases were greater in New England than any other region, being \$2.92 per ton for bituminous delivered and \$1.27 for contract and \$3.79 for spot coal at the mines. Anthracite coal delivered cost the railroads 73c. per net ton more than in 1919.

The report shows that in 1920 the roads purchased 125,486,545 tons of bituminous by contract, as against 107,526,005 tons in 1919. They purchased 29,857,090 tons of bituminous in the spot market in 1920, as against 16,381,503 tons in 1919. The cost of the coal in 1920 was \$641,224,469 as against \$390,036,556 in 1919.

For bituminous the highest delivered price in 1920 was \$8.09 per ton in New England, as against \$5.17 in 1919. The lowest delivered price was \$3.52 in the Central West. The highest price on contract at mines for bituminous was \$3.79, in New England, and the lowest was \$3.08, in Southern territory. The highest spot price at the mine was \$6.25, in New England, the lowest \$3.38, in the Central West.

The commission says that for anthracite the highest delivered price was \$12.79, in Southern territory, and the lowest \$4.05, in the Great Lakes region. At the mines the highest price was \$11.92, for the Northwest, and the lowest \$4.10, for Ohio, Indiana and the Allegheny regions. The roads purchased in 1920 a total of 5,779,819 tons of anthracite at an average of \$4.20 delivered and \$4.17 at the mines. For 1919 the purchases of anthracite totaled 4,796,353 tons at \$3.47 delivered and \$3.25 at the mines.

What Has Happened to Lake Cargo Rates and Why They Should Be Revised Downward

BY WAYNE P. ELLIS*

BECAUSE of the present abnormally high level of freight rates applying on Lake cargo coal, shippers of this class of traffic are given real reason to be gravely concerned over their business via the Lakes during the coming season, particularly on such coal destined to consuming points in Michigan, Minnesota, Wisconsin, North Dakota, South Dakota and Iowa. The enormous advances in freight rates which have taken place since Jan. 1, 1917, have placed such a heavy burden on the Lake coal traffic that the coal-dock operators in Minnesota and Wisconsin are finding it increasingly difficult this season to locate a market for their coal in the above-named states.

During the years 1917 to 1920, inclusive, freight rates did not enter largely into the calculations of the coal seller or buyer. During that period the coal consumer generally found himself in one of three positions: either without enough coal to keep his plant running regularly on account of increased demand, as in the first half of 1917 and in 1920; with coal rationed to him during government control of fuel prices and distribution, as in the latter half of 1917 and in 1918; or with coal in storage and his plant shut down or on short running time, as in 1919. In none of these conditions was it necessary to pay close attention to freight charges, and the result in the majority of cases was the unprotested payment of all that was asked by the railroads. Likewise, during this period the coal shipper was not seriously concerned about freight rates, his time being directed to the operation of his mines to the fullest capacity or to making ends meet during the 1919 period, when his mines were closed down for approximately half of the year.

The coal business, however, is drifting back to normal, when competition between producing districts will enter into the sale of the product. The Lake cargo market has become one of the most keenly competitive with which the coal shipper has to deal. The only coal produced in the so-called Northwest dock states is lignite from North Dakota mines, a product that because of its character cannot be shipped with profit long distances. They are, therefore, for the most part dependent on coals produced in other territories, receiving their fuel supply from Canada, Wyoming, Montana, Illinois, Iowa and Indiana and from Eastern mines over the coal docks at the Head of the Lakes.

TRANSPORTATION CHARGES ON COAL COMPARED

For the purpose of this article, attention will be directed solely to the past and present transportation charges on Lake cargo coal to destinations in the Northwestern States, in which it is most largely distributed, with a few comparisons with rates on competitive coals.

Tables I and II, showing the tonnage of Lake cargo coal shipped from each originating district and by each originating railroad for each year during the period 1910 to 1920, inclusive, are included principally for the purpose of directing attention to the large amount of such coal moved during the Lake season and the shifting of tonnage from one district to another. It should be remembered that about 70 per cent of the total Lake cargo tonnage reaches upper Lake docks and about 50 per cent is reshipped from those docks for general commercial use.

The question of Lake cargo rates was first brought to the attention of the Interstate Commerce Commission in 1911. In the so-called Boileau case, involving the Lake rate from the Pittsburgh district to Ashtabula Harbor, the commission decided on March 11, 1912, that the attacked rate of 88c. per ton was unjust and unreasonable to the extent that it exceeded 78c. On the same date it decided in "I. & S. Docket 26, proposed increases in Lake cargo," that rates from the originating districts served by the Baltimore & Ohio, Kanawha & Michigan and Chesapeake & Ohio Rys. had not been

justified, but that those from the Norfolk & Western districts had been.

As a result of the decision in the Boileau case the rates from the Ohio districts and the Pittsburgh district were decreased 10c. per ton and those from the Fairmont district on the B. & O. by 6½c. per ton, but from the C. & O., K. & M. and N. & W. districts in West Virginia the rates remained the same. The Boileau case decision nullified the decision in "I. & S. 26," as the N. & W. could not advance rates from its districts in view of reductions from all competing districts on other lines.

The rates put into effect at that time—April, 1912—continued in effect until the 15 per cent advanced rate case was decided in March, 1917.

In view of the continued level of rates in effect during the five-year period from 1912 to 1917 this article will deal with the advances which have been put into effect since Jan. 1, 1917, and to clarify the explanation will use the rate in effect from the Pittsburgh district as representative.

Since Jan. 1, 1917, there have been three general advances in all bituminous coal freight rates in Eastern territory: First, the 15 per cent advanced rate case decided by the Interstate Commerce Commission on June 27, 1917, but advanced rates on bituminous coal were permitted to become effective prior to this date; second, the 25 per cent advance in rates commonly known as advances under General Order 28, authorized by the Director General of Railroads, effective June 25, 1918; and third, the 1920 advanced rate case, commonly known as Ex Parte 74, increasing rates in Eastern territory 40 per cent, decided by the Interstate Commerce Commission on July 29, 1920. All three of these advances affected Lake cargo coal, but no disturbance in differentials as between origin districts was made.

SOME RATES ADVANCED, OTHERS REDUCED

In addition there has been an advance in the Lake cargo rates from a part of the originating districts decided by the Interstate Commerce Commission on July 13, 1917, in Docket No. 8725, "Lake Cargo Coal Rates." In this case the differentials as between the Pittsburgh and Ohio districts, on the one hand, and all other districts on the other, were changed, some being advanced and others reduced.

In Table III is shown the rates in effect from each district on Jan. 1, 1917, and the advanced rates as a result of each of the foregoing cases.

In Tables IV and V are shown the advances made in the rail rates on Lake cargo coal from representative originating districts and from the Upper Lake docks at Duluth to the Twin Cities, giving the amount of each advance, the subsequent advanced rate and the total percentage advance from Jan. 1, 1917, to date.

Fifteen Per Cent Rate Advance.—In this case, decided June 27, 1917, the Interstate Commerce Commission permitted rail carriers to advance all rates on bituminous coal 15 per cent, with a maximum of 15c. per ton. The carriers, however, in applying this advance added 30c. per ton on Lake cargo coal destined to rail points in Northwestern States; 15c. to the rail rates from originating districts to Lower Lake Erie ports and 15c. to the rail rates from Upper Lake docks to destination, as shown in Table V, on page 766. This method of application the Upper Lake dock operators, Northwest consumers and Lake cargo shippers considered to be an iniquity placed upon such coal and later vigorously protested against it, taking the case to the Railroad Administration. This procedure is detailed under the section referring to the 25 per cent Rate Advance under General Order No. 28.

Table I to V show that the advance of 15c. per ton was applied uniformly from each of the originating districts to lower Lake ports, differentials being maintained.

*Davis Coal & Coke Co., Baltimore, Md.

TABLE I. ANNUAL SHIPMENTS OF LAKE CARGO COAL FROM PRODUCING DISTRICTS TO LOWER LAKE ERIE PORTS, 1910 TO 1920, INCLUSIVE
(In net tons)

TABLE II. ANNUAL SHIPMENTS OF LAKE CARGO COAL BY ORIGINATING RAILROADS 1910, TO 1920, INCLUSIVE
(In net tons)

TABLE III. CHANGES IN LAKE CARGO RATES BY DISTRICTS, JAN., 1917, TO AUG., 1920

District	State	Originating R.R.	Rates in Cents per Net Ton in Effect on					
			Jan. 1, 1917	Apr. 16, 1917	Aug. 13, 1917	June 25, 1918	Aug. 16, 1920	
Butler-Mercer	Pa.	B. & L. E.	55	70	70	107	163	
Massillon	Ohio	B. & O.	60	75	75	112	168	
Middle	Ohio	B. & O.	60	75	75	112	168	
		W. & L. E.	60	75	75	112	168	
		N. Y. C. to Ashtabula	60	75	75	112	168	
Northern Ohio	Ohio	Pa. and Erie	60	75	75	112	168	
Northern Pa.	Pa.	B. & L. E.	63	78	78	115	171	
Middle	Ohio	N.Y.C. to Lorain	65	80	80	117	173	
Northern Pa.	Pa.	Pa.	68	83	83	120	176	
Massillon	Ohio	W. & L. E.	70	85	85	122	178	
Ohio No. 8	Ohio	All roads	75	90	90	127	183	
Cambridge	Ohio	Pa. and B. & O.	75	90	90	127	183	
Hocking	Ohio	H. V. T. & O. C.	75	90	90	127	183	
Pomeroy	Ohio	B. & O.	75	90	90	127	183	
		K. & M. and Z. & W.	75	90	90	127	183	
Pittsburgh	Pa.	All roads	78	93	93	130	186	
Latrobe	Pa.	Penna	83	98	98	135	191	
Hocking	Ohio	B. & O., S. W. and C. H. & D.	85	100	100	137	193	
Blairsville	Pa.	Penna	88	103	103	140	196	
Connellsville	Pa.	All roads	90	105	99	136	192	
Fairmont	W. Va.	All roads	90	105	108	145	201	
Johnstown & Indiana	Pa.	Penna	93	108	111	148	204	
Bellington	W. Va.	B. & O. and C. & C.	96 ¹	111 ¹	117 ¹	154 ¹	210 ¹	
Kanawha	W. Va.	C. & O. and K. & M.	97	112	118	155	211	
Kenova-Thacker	W. Va.	N. & W.	97	112	118	155	211	
Eastern Ky.	Ky.	C. & O. and S.V. & E.	97	112	118	155	211	
Hazard	Ky.	L. & N. (a)	.....	.....	.....	155	211	
S. En. Ky.	Ky.	L. & N. (a)	.....	.....	.....	155	211	
Ganley	W. Va.	B. & O. and C. & C.	112	127	120	157	213	
Meyersdale	Pa.	B. & O.	112	127	115	152	208	
Altoona	Pa.	Penna	112	127	115	152	208	
Cumb.-Piedmont	W. Va.	B. & O. and W. Md.	112	127	120	157	213	
New River	W. Va.	C. & O.	112	127	133	170	226	
Pocahontas	W. Va.	N. & W.	112	127	133	170	226	
Clinch Valley	Va.	N. & W.	112	127	133	170	226	

(a) Lake Cargo Rates first established on coal from mines on the Louisville & Nashville R.R. in eastern Kentucky during the first part of 1918. Prior to that time joint through rates to the proper port on Lake Erie applied.

Lake Cargo Coal Rates.—The decision of the Interstate Commerce Commission so entitled was rendered July 13, 1917, and changed the differentials between Lake coal originating districts in the manner shown in Tables IV and V. This change was made after a full hearing before the commission as a result of a general investigation entered into by it as to the propriety of Lake cargo rates.

General Order No. 28.—On June 25, 1918, advances in all rates of approximately 25 per cent became effective under authorization of the U. S. Railroad Administration in what is known as its General Order No. 28. Lake cargo coal rates were advanced uniformly 37c. per ton, the figure being arrived at by advancing the highest rated group, which carried a \$1.12 rate, 25 per cent, or 28c., plus 9c. which was the difference between the advance of 6c. per ton in that group ordered by the Interstate Commerce Commission in Docket No. 8725, "Lake Cargo Coal Rates," and 15c. per ton which was covered by a provision in General Order No. 28 permitting all rates which had not been advanced 15c. per ton subsequent to June 1, 1917, to be so increased. Both of these factors were arrived at in accordance with the provisions of General Order No. 28.

At the same time rail rates from the Head of the Lakes to destinations in the Northwest also were advanced 25 per cent, which advance amounted to 29c. per ton in the case of coal moving from Duluth to the Twin Cities. These double advances on Lake coal were protested by the dock operators, Northwest consumers and Lake cargo shippers, who alleged that the methods employed in applying the

advances authorized resulted in an advance in the rail factors on Lake cargo coal of 47c. more than the advances made on Illinois and Indiana coal to the same Northwestern destinations, the Twin Cities, with similar discrepancies at all other points in the Northwest territory.

As a result of a meeting held in Washington, D. C., on April 17, 1919, by representatives of the three interests named above a committee representing each group was appointed which met with a representative of the Railroad Administration on the succeeding day. A committee of three was then appointed to work with the Railroad Administration in figuring out an adjustment. A meeting between this committee and the Railroad Administration representatives was held on April 29, at which time the railroads proposed that the Illinois-Indiana rates to competitive Lake cargo territory in the Northwest be advanced 30c. per ton to take care of this adjustment, stating that it was not possible to make a reduction in rates, because revenue was required to meet railroad expenses.

The committee representing coal and dock operators was not satisfied with this method of adjustment, alleging that while it was an assistance it fell far short of being an adequate remedy, which could only be accomplished by an abrogation of the double advance. The Illinois-Indiana operators also protested against an advance in the rates on their coal, contending that there was no relationship between the rates on Lake coal from mine to destination and Illinois and Indiana coal to the same point.

IS THERE RELATIONSHIP IN ALL-RAIL AND OTHER RATES?

As a result of this difference in opinion the Railroad Administration took advantage of the provisions of Section 8 of the Federal Control Act and requested the Interstate Commerce Commission to advise it on the specific question of whether there was any relationship between the rail-lake-and-rail rates on Lake cargo coal and the all-rail rates from Illinois and Indiana, and if so, to suggest some remedy to restore such relationship. Hearing was had before the commission and decision rendered on July 5, 1919, in Ex Parte 68.

The Interstate Commerce Commission found that while there was a close existing relationship between the rail rates on Lake cargo coal from the Northwest docks to destination and Illinois-Indiana coal to the same point, there was no recognized relationship existing between the rail-lake-and-rail rates on Lake cargo coal from mine to destinations in the Northwest and Illinois and Indiana all-rail coal to the same territory, "and therefore, there is none to be restored." The Interstate Commerce Commission also found that "Neither the increase in the rates from the Ohio and West Virginia mines to the Lake Erie ports nor that [increase] in the rates from the western Lake ports could be withdrawn without disregarding recognized and established relationships of rates."

As a result of these findings no further formal action before the commission has been taken by the parties at interest.

1920 Advanced Rates.—On Aug. 16, 1920, with the approval of the Interstate Commerce Commission under Ex Parte 74, a further advance of 56c. per ton was put into effect on the Lake cargo rate from the mines to the Lake Erie ports, there being also an advance of 49c. per ton in the rail rate from the Northwest docks to destination. The 56c. advance was a weighted average result based upon the movement under each rate to Lake Erie ports. These

TABLE IV. ADVANCES IN RAIL RATES ON LAKE CARGO COAL FROM REPRESENTATIVE ORIGINATING DISTRICTS AND FROM UPPER LAKE DOCKS AT DULUTH TO MINNEAPOLIS AND ST. PAUL
(In Cents per Net Ton)

Date	Ohio No. 8 Adv. Rate	Pittsburgh Adv. Rate	Fairmont Adv. Rate	Connellsville Adv. Rate	Meyersdale Adv. Rate	Kanawha Adv. Rate	Pocahontas Adv. Rate	Lake Docks at Duluth to Twin Cities Adv. Rate
Rates in effect Jan. 1, 1917.....	75	78	90	90	90	112	112	96
Rates advanced effective Apr. 16, 1917.....	15	15	15	15	105	127	127	96
Rates advanced effective July 1, 1917.....	90	93	105	105	127	112	127	111
Rates advanced effective Aug. 13, 1917.....	90	93	108	108	115	118	133	111
Rates advanced effective June 25, 1918.....	37	37	37	145	136	152	155	140
Rates advanced effective Aug. 26, 1920.....	56	127	56	201	192	208	211	189
Total advances.....	108	108	111	102	96	114	114	93
Per cent advance.....	144%	138%	124%	114%	86%	118%	102%	97%

R.—Reduction.

advances raised the level of rates on Lake cargo coal to such an extent that Lake shippers and handlers feel that they are more than the traffic will bear.

In Table V all the transportation charges on Lake cargo coal from the Pittsburgh district to destination at Twin Cities, Minnesota, are shown, as well as the comparative all-rail rates from southern Illinois mines to the same points. It will be noted that in addition to the advances in rail factors, including the double advance, there has been a steady increase in the handling charges at the dock. The amounts shown for these charges are largely estimated but are based on reliable information and are conservative.

TABLE V. ADVANCE IN FREIGHT RATES AFFECTING THE TRANSPORTATION OF LAKE CARGO COAL SINCE JAN. 1, 1917,* USING THE PITTSBURGH DISTRICT AND THE TWIN CITIES AS REPRESENTATIVE OF ORIGIN AND DESTINATION GROUPS, RESPECTIVELY

Item of Transportation Cost	Rates in Effect Jan. 1, 1917	Advance Made Apr. 16, 1917, by Order of I. C. C. in 15% Advance Rate Case	Advance Made Aug. 13, 1917, by Order of I. C. C. in Lake Cargo Case, I. C. C. Docket No. 8725, (5)	Advance Made June 25, 1918, by Order of U. S. R. R. Adm.	Advance Made Aug. 16, 1920, by Order of I. C. C. in 40% Adv. Rate Case
Rail rates from mines to Lower Lake Erie port.....	78	93	93	130	186
Transferring coal from car to vessel at Lower Lake Erie port.....	5	5	6	6	8
Lake transportation (1).....	30	42 $\frac{1}{2}$	42 $\frac{1}{2}$	48	50
Marine insurance (2).....	...	...	...	...	...
Handling the coal from vessel to dock at Upper Lake P. rts. (3).....	65	75	75	100	115
Handling the coal from dock to car at Upper Lake Port (3).....	...	...	...	...	...
Degradation of coal from handling, etc. (4).....	...	...	...	...	...
Rail rate from Duluth to Twin Cities, Minn.	96	111	111	140	189
Total transportation cost.....	274	326 $\frac{1}{2}$	327 $\frac{1}{2}$	424	548 $\frac{1}{2}$
Southern Illinois all rail rates to Twin Cities.....	230	245	245	285	385

(1) Average of daily boat rates on bituminous coal.
 (2) No average figures available. Amount negligible in cents per ton of coal.
 (3) Estimated amounts based on testimony given in Lake Cargo Rate Case before Interstate Commerce Commission and approximate costs since.
 (4) Breaking up of coal in transit and the amount included here is the estimated difference in price between screened lump and run-of-pile coal on the docks at the head of the lakes.
 (5) Advanced rates made as result of Interstate Commerce Commission decision in Lake Cargo Case did not apply to coal originating in the Pittsburgh district but did apply to coal originating in the Fairmont, Kanawha and other districts taking equal or higher rates.

Measure of Lake Cargo Rates.—To illustrate the comparative level of the Lake cargo rates, the following deals with those in effect from the Pittsburgh district as compared with other rates applying on bituminous coal moving in the same general direction. Table VI is self explanatory:

TABLE VI. THE MEASURE OF INCREASES MADE IN COAL RATES FROM PITTSBURGH DISTRICT TO REPRESENTATIVE POINTS SINCE JAN. 1, 1917, AS COMPARED WITH THE MEASURE OF INCREASE IN THE LAKE CARGO COAL RATE

Station	Rate Jan. 1, 1917	Rate Aug. 26, 1920	Inc. in Cents	Inc. in per Cent
Youngstown.....	70	150.0	80	114.0
Alliance.....	85	177.5	92.5	109.0
Canton.....	95	177.5	82.5	87.0
Akron.....	95	197.5	102.5	108.0
Cleveland.....	100	205.5	105.5	105.5
Mansfield.....	115	226.5	111.5	97.0
Toledo.....	125	266.0	141.0	113.0
Detroit.....	140	287.0	147.0	105.0
Erie.....	100	205.5	105.5	105.5
Buffalo.....	125	251.0	126.0	101.0
Rochester.....	140	266.0	126.0	83.0
Chicago.....	190	343.0	153.0	81.0
Average.....	115.0	229.42	114.42	99.49
Lake cargo rate.....	78.0	186.00	108.00	138.00

It will be noted that while the Lake cargo rate from the Pittsburgh district has been advanced 138 per cent from Jan. 1, 1917, to date, the rates on bituminous coal from the same district to twenty-five all-rail destinations has been advanced on the average about 99 $\frac{1}{2}$ per cent, showing forcibly the abnormally high increase in Lake cargo rates. During the same period the rate per ton per mile on this coal from the Pittsburgh district to the Lakes rose from

4.78 mills to 11.41 mills, using the average weighted distance of 163 miles as found by the Interstate Commerce Commission in Docket No. 8725.

It has long been recognized that coal traffic on Eastern railroads is one of the best paying of any handled. It is for the most part hauled in solid trains from classification yards to central breaking-up points near destination; it is not susceptible to the risks of much other higher class freight; and it loads heavily into cars. The only large factor entering into increasing cost is the empty return haul of open-top cars to the mines, which factor in the case of a larger part of the coal movement amounts to 100 per cent.

This latter factor, however, is present in but small degree in the case of Lake cargo coal movement from the western Pennsylvania, Ohio and other districts. The movement of coal from mines in those territories to Lake Erie ports provides a loaded return of open-top cars which have in the first instance carried ore from the Lower Lake docks to furnaces in territory contiguous to the mines. The delay of unloading cars at the ports also is less than in the case of cars moving to general commercial channels, which decreased delay permits such cars to be returned quickly to revenue paying business for the carriers. It also is true that the movement of coal off the Upper Lake docks is practically all handled in box cars which have carried grain from territory which also consumes the coal shipped from the docks.

All these factors, affecting directly the cost of handling Lake cargo coal, should be taken into account in making rates on that traffic. With them in mind together with the rate comparisons and the effect of the present level of such rates on the movement of Lake coal, it can be stated without fear of successful refutation that the present transportation charges on Lake cargo coal destined to Northwestern points are too high and should be decreased at the earliest possible date.

Opening of Bids for New York City Coal Needs Reveals Only Two Bidders

FOR furnishing and delivering alongside the dock of the City Asphalt plant, 90th Street and East River, New York City, 6,000,000 lb. of buckwheat No. 2 and 1,500,000 lb. of egg coal only two bids were received by the President of the Borough of Manhattan on April 20. The specifications called for bids in 1,000 lb. units. The bids received follow:

Inter City Fuel Co. Gavin Rowe
Buckwheat No. 2..... \$2.92
Egg..... 5.55

At the same time the Inter City Fuel Co. was the lone bidder for furnishing, delivering, storing and trimming coal for the use of the various public buildings, courts, etc., in the Borough of Manhattan. Prices submitted were for 1,000 lb. units. The amounts and prices follow:

2,650,000 lb. buckwheat No. 1.....	\$4.39
45,160,000 lb. buckwheat No. 2.....	3.95
2,300,000 lb. egg, stove, broken or chestnut.....	6.78
4,600,000 lb. semi-bituminous.....	4.77

Another bid, that of William Farrell & Son, which, according to those in charge of the opening of bids, was not presented until after the time fixed for receiving bids, was received but not opened, after a protest had been made by the firm's representative.

CONTRACTS FOR COAL to supply Indiana state institutions for a year will be let May 2, Fred B. Robinson, secretary of the State Joint Purchasing Committee, announced recently. The contracts will be for more than 200,000 tons. Mr. Robinson has asked that all bids be submitted before 10 a.m. of the day contracts are to be let. The contracts for state coal were originally to have been let April 1, but at the request of Governor Warren T. McCray all bids were rejected. Since that time Maurice Shelton, who was then secretary of the committee, has been supplanted by Mr. Robinson.

Retail Anthracite Prices Drop with Mine Prices; Bituminous Decline Is More Gradual

RETURN to normal is said to be retarded by the reluctance of retail merchants to lower their prices to accord with the drop in producers' prices. To what extent, if any, is this true with regard to coal? Retail coal merchants in fourteen cities have co-operated with *Coal Age* correspondents in giving strictly comparable prices for each important kind of household coal sold locally by months from December to April. The drop in these retail prices—that is, the prices paid by the householder at his curb—in the past five months is compared with *Coal Age* quotations on these same coals at the mines on the same dates.

The outstanding fact is that retail prices of anthracite have on the average declined in conformity with mine prices, while retail prices on soft coal have not, save with a few striking exceptions, declined to meet the drop in spot prices of bituminous coal.

Retailers in the East last winter based their price increases on the spectacularly high prices for domestic sizes of hard coal charged by the so-called "independent" producers—whose output is but 25 to 30 per cent of the total. Mine prices of this independent coal have dropped \$4.70 a gross ton (\$4.20 per net ton) since December on egg, stove and nut sizes. In the same period company prices—that is, prices by the large railroad companies producing the remaining 70 per cent of the total—have declined but 30c. per gross ton (27c. a net ton). Since the independent coal is one-fourth the total and the company coal is three-fourths, the average reduction of both has been \$1.40 per gross ton (\$1.25 per net ton), which is almost exactly equal to the simple average of reductions in retail prices on these same coals.

LARGEST REDUCTIONS ON INFLATED PRICES

There are notable exceptions to this general statement, but that coal merchants in the East, where anthracite is the principal household fuel, have generally followed the drops in mine price since last December there is no doubt. It is equally true that those dealers who have made the largest price reductions are those who added on the most last fall. The range in New York City is typical, one class of dealers showing as much as \$2.25 per ton off December figures, but with this reduction their prices are now no lower than those who have come down but 75c. Dealers in Columbus and Cincinnati have reduced prices on Pocahontas lump from \$1.35 to \$1.50 per ton, whereas mine prices have gone down \$2.75 in the same period. In Cleveland the retail price shows a decrease of but 35c. on the same coal. Pocahontas mine-run, on the contrary, has been reduced from \$4 to \$4.30 per ton in Detroit and Chicago, while the mine price dropped but \$1.50. Such instances as this confirm the suspicion that some retailers were not overmodest in their charges last winter.

It is manifestly unfair to compare the recessions in retail prices with corresponding mine prices in percentages, because mine price makes up from one-third to one-half the delivered price, and freight and actual delivery costs represent such a large portion of the total out of pocket expense to the retail dealer over which he has no control.

Retail coal merchants in the cities farther West, where soft coal is the principal household fuel, have not reduced their prices as much as the spot prices charged at the mines have been reduced but this is in part explained by the fact that these dealers did not have to pay high spot prices for all the coal purchased last winter; what they got on contract or from old reliable mine connections was not so expensive. For instance, the freight and war tax on a ton of 2,000 lb. of chestnut anthracite to Chicago is \$5.79 and the lowest mine price is now \$6.60, a total of \$12.39, which leaves the Chicago coal merchant but \$2.46 to cover delivery and yard costs, overhead and profit.

Retail coal merchants cannot, because of the large bulk, carry such a large portion of their year's business in storage as can merchants in some other commodities. During

the winter the coal merchant turns his stock over very rapidly, and last winter he seldom had accumulations of any size. Today, with the advent of warm weather, retail yards are stocked to overflowing in nearly every city, and dealers are seriously endeavoring to move their coal by getting their prices down, in some instances by amounts greater than the reduction offered them by the producer.

Whether in any particular locality retail prices are now at rock-bottom can be determined locally by adding to the following mine prices, which are representative for the present, the freight rate from the mines to that city and around \$2 as the minimum to cover the retailer's costs and profit:

SPOT PRICES AT THE MINES OF BITUMINOUS COAL IN NET TONS AND ANTHRACITE IN GROSS TONS

							Decrease Dec. to April
Anthracite:	Dec.	Jan.	Feb.	Mar.	Apr.		
Company	\$7.70	\$7.85	\$7.90	\$7.90	\$7.40	\$0.30	
Independent	12.30	11.00	10.00	8.50	7.60	4.70	
Bituminous:							
Ohio No. 8 lump	6.00	4.60	3.75	3.60	3.60	2.40	
Hocking lump	5.75	4.50	3.85	3.50	3.25	2.50	
Pocahontas lump	6.75	5.25	5.00	5.75	5.00	2.75	
Pocahontas mine-run	5.25	4.50	4.00	3.75	3.75	1.50	
Clearfield mine-run	5.00	3.25	2.75	2.60	2.45	2.55	
Kanawha lump	6.00	4.60	4.80	3.75	3.25	2.75	
So. Illinois lump	5.85	4.25	3.80	3.60	3.55	2.30	
Kansas lump	6.00	6.00	5.75	5.50	5.00	1.00	
Arkansas lump	6.75	6.75	6.75	6.00	6.00	.75	
Colorado lignite lump	6.00	5.75	5.75	5.25	...	...
Colorado Routt County lump	6.35	6.50	6.35	6.50	5.50	.85	

RETAIL PRICES OF COAL, DECEMBER, 1920, TO APRIL, 1921

NEW YORK CITY						
(Net Tons—2,000 Lbs.)						
Kind of Coal	Dec.	Jan.	Feb.	Mar.	Apr.	Decrease, Dec. to Apr.
Anthracite						
Broken	\$13.50@14.85	\$13.40@14.75	\$13.40	\$13.40	\$12.75	\$0.75@2.10
Egg	13.50@15.00	13.40@14.75	13.40	13.40	12.75	.75@2.25
Stove	13.85@15.25	13.75@14.75	13.75	13.75	13.00	.85@2.25
Chestnut	13.85@15.25	13.75@14.75	13.75	13.75	13.00	.85@2.25
Pea	11.50@12.70	11.50@12.50	11.50	11.50	10.75	.75@1.95
Buck No. 1	8.90@9.75	8.70@8.90	8.70	8.70	8.10	.80@1.65
Buck No. 2	7.90@8.60	7.70@8.15	7.70	7.70	7.10	.80@1.50
Buck No. 3	6.90@6.45	6.70@6.50	6.70	6.70	6.10	.80@.35
Bituminous	9.10@12.00	9.00@10.75	9.00	9.00	9.00	.10@3.00

BOSTON						
(Net tons—2,000 lbs.)						
Anthracite						
Broken and egg	\$16.00	\$16.00	\$16.00	\$16.00	\$14.75	\$1.25
Stove and nut	16.00	16.00	16.00	16.00	15.00	1.00
Pea	14.25	14.25	14.25	14.25	13.00	1.25
Bituminous:						
Mine-run	14.00	12.50	12.00	10.75	9.75	2.75

PHILADELPHIA						
(Gross tons—2,240 lbs.)						
Anthracite:						
Egg	14.50	14.50	14.50	13.50	12.75	1.75
Stove	15.00	15.00	15.00	14.00	13.00	2.00
Nut	15.00	15.00	15.00	14.00	13.00	2.00
Pea	12.00	12.00	12.00	10.50	10.25	1.75

BALTIMORE						
(Gross tons)						
Anthracite:						
Egg	15.50	15.50	15.50	15.50	14.50	1.00
Stove and nut	15.75	15.75	15.75	15.75	14.75	1.00
Pea	12.00	12.00	12.00	12.00	12.00	....

WASHINGTON, D. C.						
(Gross tons)						
Anthracite	Dec.	Jan.	Feb.	Mar.	Apr.	Decrease
Stove	\$16.20	\$16.20	\$15.40	\$14.95	\$14.05	\$2.15
Nut	15.90	15.90	15.40	14.95	14.05	1.85
Pea	12.95	12.95	12.40	12.15	11.60	1.35

CHICAGO						
(Net tons a)						
Bituminous:						
Franklin Co.						
Nut, egg, and lump	9.90	8.75	8.50	8.50	7.90	2.00
Pocahontas:						
Mine-run	12.25	11.00	10.00	10.00	7.95	4.30
Anthracite:						
Small egg	16.40	15.70	15.00	15.00	14.50	1.90
Range	16.40	15.70	15.00	15.00	14.60	1.80
Nut	16.50	15.80	15.40	15.40	14.85	1.65
Pea	14.60	13.50	12.80	12.80	12.60	2.00

a In wagonloads of four to five tons. Single ton deliveries 40c. higher.

CLEVELAND (Net tons)						
Kind of Coal	Dec.	Jan.	Feb.	Mar.	Apr.	Decrease Dec. to Apr.
Bituminous:						
Pocahontas lump.	\$11.75	\$12.35	\$11.90	\$11.60	\$11.40	\$0.35
W. Va. lump....	11.75	11.50	11.15	10.00	10.00	1.75
Ohio No. 8 lump..	9.65	9.15	9.30	8.15	8.15	1.50
Anthracite:						
Stove, egg, nut...	15.10	15.45	14.90	14.90	13.85b	1.25
b Average for April of stove, \$13.95; egg, \$13.75; nut, \$13.90.						
COLUMBUS (Net tons)						
Bituminous:						
Pocahontas lump	11.00	10.50	10.50	10.50	9.50	1.50
W. Va. lump....	10.00	8.50	9.00	8.85	7.85	2.15
Hocking lump....	8.60	8.15	7.85	7.75	6.65	1.95
CINCINNATI (Net tons)						
Bituminous:						
W. Va. and E. Ky. lump.....	9.85	9.85	9.40	9.65	7.25	2.60
Pocahontas lump.	11.35	11.25	10.75	10.75	10.00	1.35
Anthracite:						
Egg and nut....	15.65	15.65	15.65	15.65	....	....
DETROIT (Net Tons)						
Anthracite:						
Egg.....	16.50	16.00	15.50	15.50	14.50	2.00
Stove and nut....	16.50	16.00	15.75	15.75	14.75	1.75
Bituminous:						
Pocahontas mine- run.....	14.00	12.50	11.00	11.00	10.00	4.00
Ohio lump.....	12.00	12.50	11.00	11.00	10.00	2.00
W. Va. [mine-run]	15.00	....	....	....	7.50	7.50
BUFFALO (Net tons)						
Anthracite:						
Stove and nut....	13.25	13.25	13.15	12.90	12.40	0.85
Egg.....	13.00	13.00	12.90	12.65	12.15	0.85
Pea.....	11.00	11.00	11.00	11.00	10.30	0.70
PITTSBURGH, PA. (Net tons)						
Bituminous:						
Pittsburgh lump. 7.75@8.50	....	....	....	....	7.50	0.25@1.00
KANSAS CITY, MO. (Net tons)						
Bituminous:						
Kansas lump....	12.00	11.50	11.00	10.50	10.00	2.00
Kansas nut....	11.75	11.00	10.00	9.50	9.50	2.25
Arkansas smoke- less lump....	16.50	15.00	14.00	14.00	13.50	3.00
DENVER (Net tons)						
Lignite lump....	10.15	9.90	9.90	9.25	8.50	1.65
Bituminous:						
Routt Co. lump..	12.50	12.25	12.25	12.25	11.50	1.00
TORONTO, CANADA (Net tons)						
Anthracite:						
Egg, stove and nut	16.90	16.90	16.90	15.50	14.40	
Bituminous lump..	17.00	13.25	13.25	13.25	12.50	4.50

Freight-Car Loading Gains; Coal Movement 44,000 Cars Less Than a Year Ago

THE number of cars loaded with revenue freight on the railroads of the United States showed a considerable gain during the week ended April 9, according to reports compiled by the car service division of the American Railway Association. The total for the week was 693,719 cars, an increase as compared with the previous week of 27,077 cars, although it was 107,000 cars less than for the corresponding week of 1920 and 17,000 cars less than for the corresponding week of 1919. The loading for the week of April 9 also was greater than in the previous three weeks.

There was a gain in the loading as compared with the previous week in all districts except the Central Western and the Southwestern, although the reports show a decrease as compared with 1920 in all districts. Increases as compared with the previous week were shown in the loading of grain and grain products, livestock, coal, forest products, and merchandise and miscellaneous freight combined, and an increase as compared with 1920 was shown in the loading of grain and grain products. The coal loading was about 44,000 cars less than for the corresponding week of 1920. The loading of merchandise and miscellaneous freight, 449,493 cars, was greater than that for any previous week this year but was still about 34,000 cars less than the total for the corresponding week of 1920.

The total car loading since Jan. 1 this year has been 9,706,514 cars, as compared with 11,484,467 in 1920.

Northwestern Dock Workers May Tie Up Docks Because of 20 Per Cent Wage Cut

GENERAL tie-up of coal docks in Duluth, Superior and Ashland is threatened as the result of a mass meeting in Duluth April 25 of 1,000 dock workers representing 3,500 employees of coal dock operators in the three cities. The meeting was called to discuss action in protest of a 20 per cent reduction in wages to become effective May 1, and a general strike was considered as a method of making operators restore the former rate of wages. Operators say that a general strike will tie up the harbor at Duluth at least temporarily and agree now that a strike is imminent, although they said when the wage cut was offered that the men would undoubtedly accept the new wage. Officials of the union admitted that the idea of the men was for a strike although they denied any official plans had been made to carry on the fight for higher wages.

Navy Asks Appropriation of \$6,600,000 for Coal Requirements to June 30

THE Navy Department has requested Congress to appropriate \$6,600,000 for fuel for the balance of the fiscal year, ending June 30 next. Last year's estimate called for \$37,438,000 for fuel but Congress appropriated \$30,000,000. To March 1 of this year the navy has spent \$24,937,000 for fuel. To continue operation of the fleet, with such savings in fuel as can be made through reduced steaming in May and June, will require for the balance of the year \$11,600,000, of which \$5,063,000 is available.

Secretary Denby advises Congress that the deficiency act passed March 1 last carrying fuel appropriations was enacted at a time when it was not practicable to change the steaming program of the fleets necessary to finish prescribed maneuvers and target practice in March and April so that the only reduction in expenditures from the average consumption will be due to the vessels of both fleets being at navy yards for docking and overhauling in May and June.

Minnesota Legislature Considers Coal Probe Bill; No Price Control Provision

THE Legislature of Minnesota has been considering a bill giving the State Railroad and Warehouse Commission power to investigate coal market conditions, costs and expenses generally, and to go into coal history for five years back, giving to the public the information so obtained. The commission is to procure estimates of fuel needs of the various communities of the state, and to work to obtain an adequate supply of fuel. The bill does not attempt to regulate prices, except through the indirect method of giving to the public the margins shown between costs and retail prices. Opposition has been raised by coal men, who assert that the bill belongs in Congress, where it might have some weight, but that it is worthless in Minnesota. Such opposition, in the public view, comes from those in the trade who have a mercenary object, and as a result the bill has received a great deal of undeserved support. There is no doubt that it will impose some burdensome responsibilities upon the retail coal trade, who will be hit the hardest, while the ultimate effect is likely to be negligible. But anything that savors of a hit at the coal man is popular, hence the public support.

The creation of a Government Bureau of Supply, with a director at \$10,000 a year, to purchase and distribute all supplies for the government service except real estate and printed or engraved matter, which would take over the Government Fuel Yard, now operated by the Bureau of Mines, is proposed in bills introduced by Senator Frelinghuysen, of New Jersey, and Representative Wood, of Indiana.

Coal Commissioner's Powers May Be Given Secretary of Interior; Chairman Clark Favors Seasonal Rating

BY PAUL WOOTON
Washington Correspondent

THE powers conferred in the Frelinghuysen coal commissioner bill probably will be vested in the Secretary of the Interior. Both the coal commissioner bill and the seasonal freight rate bill were considered April 22 by the full Committee on Interstate Commerce. Senator Frelinghuysen submitted at the committee meeting a revised draft of his coal commissioner bill. In that draft all the powers provided by the bill were conferred upon the director of the U. S. Geological Survey. It was brought out that Dr. George Otis Smith, director of the Survey, is strongly of the opinion that the powers should be vested in the Secretary of the Interior. His opinion had added weight from the fact that Senator Frelinghuysen's proposal carried with it an addition of \$5,000 to Dr. Smith's salary.

After some discussion in the committee it was agreed that it would be better to place authority in the Secretary of the Interior, as he could apportion the duties among several agencies. For instance, the Bureau of Mines, which already has made extensive investigations of the storage problem, could be assigned to undertake the duties in that connection which the bill requires. More important, however, is the fact that the recommendations which will be made as the result of the facts gathered can be made by an agency entirely apart from the bureaus which gather the data on which such conclusions are based. The members of the committee recognize that when conclusions and recommendations are made by the agency which gathers data it is subject to the charge that the data have been perverted to square with preconceived conclusions.

LEGISLATION LEANS TO FACT FINDING

Evidently it is the policy of the majority party in the Senate to go no further in coal legislation than to require facts. Senator Frelinghuysen maintains stoutly that his bill is a fact-finding measure and nothing more. In other quarters, however, the feeling is that the exacting and comprehensive types of investigations provided by the bill, as well as the power to compel appearances anywhere in the United States, make the measure in effect a regulatory one. It is admitted that much will depend upon the way in which the measure is administered, but the opinion seems to be that in its present form the coal commissioner would have little difficulty in exercising regulatory powers.

While the rewriting of the bill is left to the sub-committee of which Mr. Frelinghuysen is chairman it is regarded as significant that the full committee should specify that the bill is to be rewritten. If the bill can be revised so as to eliminate fines and prison sentences and so as to specify under what conditions one engaged in the coal trade may be served with a subpoena to appear in Washington or at any other point in the United States, some are of the opinion that the results desired can be accomplished with much less resentment on the part of business. Dr. Smith, who has been consulted frequently in regard to this proposed legislation, is of the opinion that publicity probably will

be the only recourse necessary to obtain compliance with the provisions of the statute. At any rate he believes the attempt should be made to see if publicity will not accomplish the ends sought by those advocating regulation.

The committee also considered Senator Frelinghuysen's seasonal coal freight rate bill. Chairman Clark, of the Interstate Commerce Commission, reiterated the opinion which he had expressed to the committee previously to the effect that great economy of transportation could be effected by seasonal rating and that the effect of the proposal would be to add materially to the stability of the coal industry.

The sub-committee which will perfect the bill consists of the same members who conducted the hearings during the preceding Congress. They are Senators Frelinghuysen, of New Jersey; Townsend, of Michigan; Elkins, of West Virginia; Walcott, of Delaware, and Myers of Montana. The hope was expressed that the bills could be reported out without public hearings. It is believed, however, that there will be such demand for hearings that they will be granted. The seasonal freight rate bill was the subject of extended hearings a year ago, but it is contended that conditions have changed and that more mature thought on the matter now is available. The coal commissioner bill was taken up only incidentally during the seasonal rate hearings. For that reason, it is argued, an opportunity should be granted those concerned to be heard.

THE FARMERS' UNION at a meeting in Washington during the week ending April 14 asked President Harding to call an industrial conference to consider measures to improve the present situation. They requested that representatives of the coal and other basic industries be invited to this conference. Senator Calder, of New York, author of coal regulation legislation, speaking before the farmers' meeting, gave reasons why the farmers should support coal regulation.

DR. H. A. GARFIELD, former Fuel Administrator, in a recent call on the President discussed the coal situation, which led to reports that coal-price reductions would be sought through passage of the Frelinghuysen coal freight rate bill, which would permit reduced coal freight rates during the summer.

IT IS UNDERSTOOD THAT tests of bituminous coal offered by contractors at the recent reception of bids for supplying the Government Fuel Yard have shown the coal to be of poor quality. Because of continued protests by Government departments in Washington as to poor quality of coal, it is believed that the Bureau of Mines will reject the bids.

THE DEPARTMENT OF JUSTICE is undecided whether to appeal to the Circuit Court of Appeals or the U. S. Supreme Court the coal commandeering cases being brought by coal companies, who are winning in the lower courts in their claim for greater compensation than was paid by the navy under commandeering orders. Decision by the Supreme Court in a test case, though not applying to coal, will guide the department in the matter of appeals.

Deadlock in British Strike Causes Much Suffering; Public Cold to Strikers

ANOTHER week has passed without any notable change in the British strike. After the mine workers left London to get in touch with their constituents the Board of Trade called in the mine owners and brought pressure to bear on them to modify their proposals and wage scales, some of which the government regarded as indefensible and in need of amendment, according to the statement of Lloyd George in Parliament on April 18.

In consequence on April 19 the mine operators made nine proposals: (1) Establishment of a National Wage Board, (2) application of national principles to wages in each district based on the financial condition of the industry in that district, (3) national settlement of the periods chosen for ascertainment of district results, (4) national determination of point below which wages shall not be automatically reduced, (5) return as wages to workers, in addition to wage rates, of the whole surplus revenue available in each district during existing abnormal period, (6) satisfaction of the workers' representatives in each district that the district is proposing to pay all the wages it can bear, (7) conference with the workers' representatives with a view to dealing with the wages of lower-paid men, (8) national agreement with the workers regarding the future relation between wages and profits, (9) joint audit of mine owners' books.

MINE OWNERS PROPOSE THREE MONTHS' TRUCE

The mine workers having declared by a large majority vote that they wished to continue the strike, these concessions did not win the support of their leaders. They seem revolutionary enough to suit anyone, but to the mine workers' leaders they were too vague to afford a basis for negotiation. On April 25 the mine owners submitted a proposition for a three-month truce, to be followed by a permanent settlement embracing a standard wage and a standard profit. The country would be divided into five districts and for three months reductions in wages in each area should be uniform and not exceed an amount set by the government, the owners and men. Surplus revenues in any area are to be divided between operators and mine workers, and if wages were likely to be reduced the owners would not share in the surplus or take standard profits.

Meantime both mine workers and the public are daily suffering more acutely than before. The allowance of coal to individuals is 56 lb. weekly. This is an extremely meager allowance, as snow has fallen in some sections. Many small businesses have closed down. It is thought that some of the large public schools also may have to suspend sessions. The potteries are closing, train schedules are reduced between 50 and 75 per cent of normal, factory closings are frequent, fishing fleets are idle. In Birmingham, home of the steel trade, only three blast furnaces are running. In Sheffield 40,000 persons are without work. In Glasgow 59,000. The government is trying to correct the necessity for "fuel lines." At Chislehurst, in Kent, where no coal is obtainable, the Town Council has given the people permission to gather wood in the nearby forests.

CARLISLE RAILROAD MEN FAVOR A STRIKE

Here and there the sentiment that built the Triple Alliance still exists. The railroad men of Carlisle still favor a railroad strike, and the transport workers refuse to unload coal from Germany, Belgium and the United States and even to unload for the railroads 10,000 tons of Welsh coal mined before the strike. Recruiting still continues. Some have questioned the necessity for the volunteers, seeing that the strike is no longer expected to be general. The new force is costing about five millions of dollars a week, almost as much as the subsidy formerly paid to the coal industry. On April 18 the question was raised as to the advisability of disbanding, but Lloyd George declared that he favored over-insurance, rather than under-insurance, against disorder and revolution.

The public for the most part, angered at the decision to drown out the mines and the attempt to ruin them by actual violence, is still unfriendly to the strikers, but several of

the leading Bishops and Nonconformist clergy have urged a more dispassionate consideration of the mine workers' demands. The pumpmen at eighty mines have left their work for the second time. At forty-five other mines soldiers and sailors are protecting and even manning the pumps.

Government Files Answer to National Coal Suit; Dismissal of Injunction Asked

ATTORNEY GENERAL DAUGHTERY and the other officials named in the National Coal Association's injunction suit to prevent service on the coal association under the Indianapolis conspiracy indictment, have filed their answer to the association's bill in the District of Columbia Supreme Court. The court is asked to dismiss the injunction on the ground that the local court lacks jurisdiction, and the further ground that if granted the injunction would operate against the government.

Questions of jurisdiction consumed the entire day April 25, when L. Ert Slack, special assistant to the Attorney General, appeared in the Supreme Court of the District of Columbia contending that the court did not have jurisdiction which would permit the issuance of an injunction restraining the U. S. District Court in Indiana from compelling the appearance in Indianapolis of the National Coal Association and certain of its officers. Mr. Slack based his case on the following arguments:

"(1) This action is a civil suit in equity wherein plaintiffs seek to enjoin defendants, as officers of the United States of America, sworn and charged, from further performing their several duties in the prosecution of a criminal action, to wit: an indictment found and returned, and now pending in the District Court of the United States for the District of Indiana, in which indictment these plaintiffs and others are defendants; and this Court is without jurisdiction as a court of equity to entertain, hear or determine any of the matters and things set forth in the bill of complaint filed herein.

"(2) This action is a civil suit in equity wherein plaintiffs seek to enjoin defendants, as officers of the United States of America, sworn and charged, from further performing their several duties in the prosecution of a criminal action, to wit: an indictment found and returned, and now pending in the District Court of the United States, for the District of Indiana, in which indictment these plaintiffs and others are defendants; and this Court is without equitable power to grant the relief prayed for in said bill of complaint filed herein.

"(3) This action is a civil suit in equity against officers of the United States of America to enjoin such officers from proceeding to prosecute an indictment against the individual and corporate defendants who are plaintiffs in this action, and who are charged in said indictment now pending in the U. S. District Court for the District of Indiana, with having violated certain federal statutes, and which District Court for the District of Indiana now obtains and has jurisdiction of such prosecution, and although the United States of America is not named in the bill of complaint filed herein, and is not a party to the record herein, it is the real party in interest, and the only party against which alone, in fact, the relief prayed for in this bill of complaint is asked, and against which the judgment and decree prayed for would operate, and plaintiffs have not, by plea or otherwise, shown that the United States of America has directly or indirectly consented to the prosecution of this action or to be sued by either of the plaintiffs herein, and has not consented to be sued in this action.

"(4) The pleas contained in the bill of complaint filed herein do not entitle plaintiffs, or either of them, separately or severally, to equitable relief and should be dismissed for want of equity.

"(5) The plaintiffs herein, and each of them, separately and severally, have a full, adequate and complete remedy at law."

Judge Foster, of counsel for the National Coal Association, cited numerous cases to disprove the contentions of the assistant to the Attorney General, but Justice William Hitz gave no intimation as to the finding he will make.



Production and the Market

Weekly Review

WHAT the future may hold for the industry is the question that is today uppermost in the minds of producers and shippers. Many profess to see a fall rush for coal which will be intensified in proportion as consumers delay their purchases.

Purchasing agents do not dispute the fact that coal can now be secured at ridiculously low prices at the mines, but they are not to be pushed into the market for more than their current needs. One reason for this is their hope and belief that freight rates are bound to come down and their idea is a respite from purchasing more than they need until this reduction may have been accomplished, at which time they hope that the lower carrying charges will offset any increase in the mine price.

Were any material reductions in existing freight rates to be made, they could hardly go into effect until late summer or early fall. When the present unsatisfactory transportation conditions are considered, it is plain that with scarcely any improvement in industry and manufacturing, a car shortage is almost inevitable. How much or how little this will affect the price of coal will depend largely on the reserve stocks of buyers. If heavier than is now conceded, they will stave off in a measure, the entrance of too many orders for prompt

delivery, fulfillment of which would then be impossible.

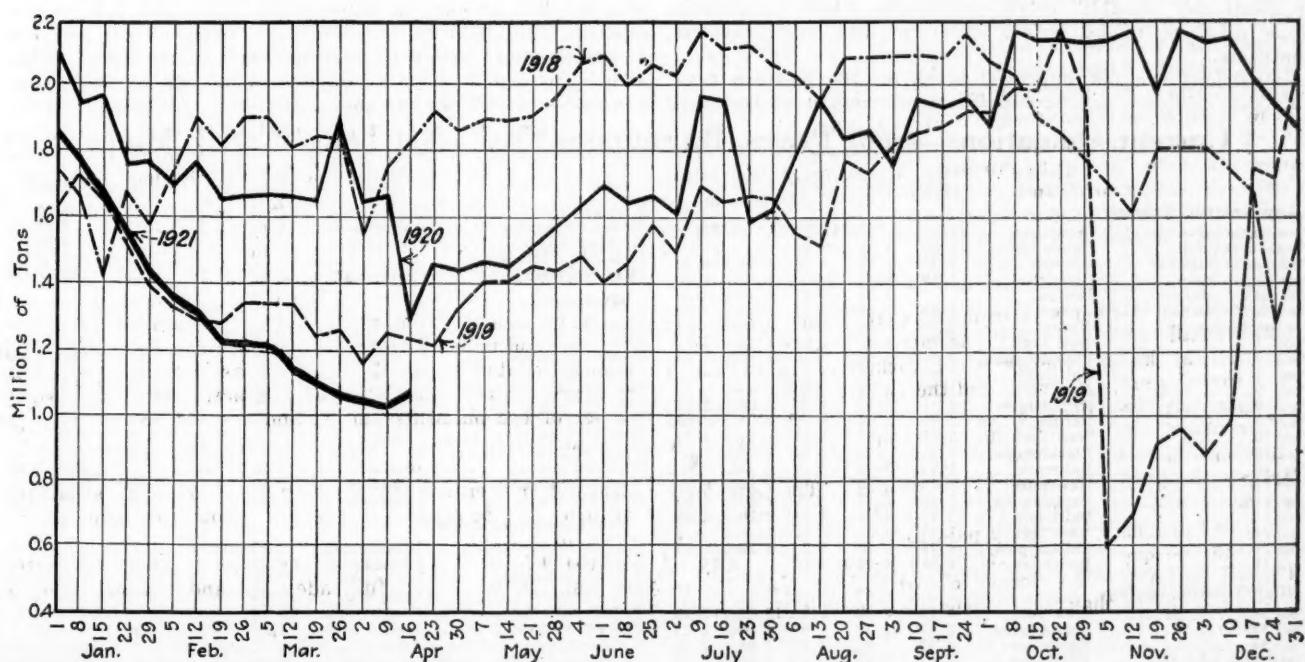
For the first time in months, production has taken an upturn. This is the usual recovery from the period immediately following the close of a coal year and it is believed that the low point has now been passed. Production in the Middle West has not improved, although a better market tone has developed in that section in the past few days. Contracting is progressing past the inquiry stage and it is evident that buyers are aware of the impending shortage and are taking steps to cover. This is true of at least one large railroad in the Central States, which is making ample provision for its needs.

CONSUMER DELAYS STOCKING BY RETAILERS

Retailers are coming into the market in larger numbers, but many of their orders are for delivery sixty or ninety days hence, as yards are still heavy with coal. The domestic consumer of soft coal is taking hold very slowly and until he overcomes this tendency, retail stocking cannot commence in earnest.

Anthracite production is progressing satisfactorily. Domestic sizes are in good call as the consumer is becoming convinced that he is in for no more price cuts such as have featured the retail markets recently. More independent mines are being put in operation, at small

Daily Average Production of Bituminous Coal*

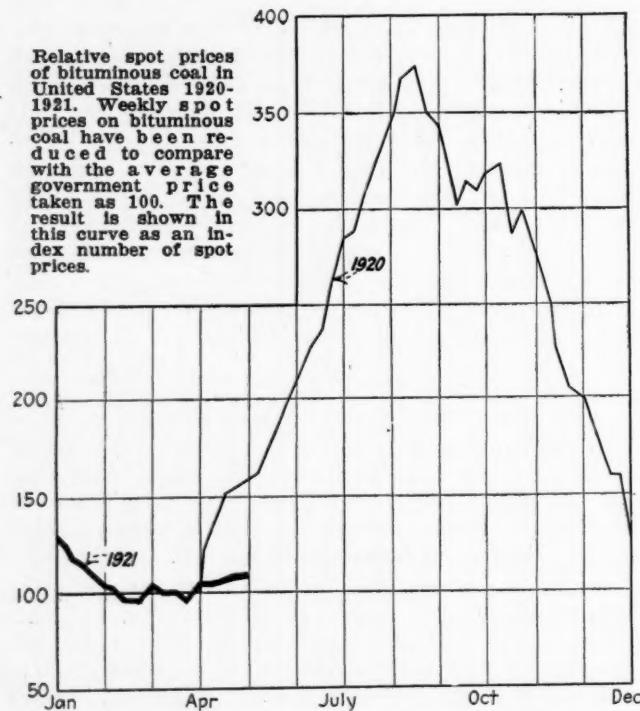


*From weekly report of Geological Survey.

premiums over the company schedules. Independent pea coal, however, is often sacrificed to clear the tracks, as this size is sluggish. Steam coals are also in poor call and are being stored in large quantities.

BITUMINOUS

Better production marked the week ended April 16, the output reaching 6,525,000 net tons, as compared with 6,109,000 tons for the last preceding week, according to the Geological Survey. This is the first upturn in the rate of daily production since early in December, 1920, when the steady decline commenced. Loadings improved slightly on Monday, April 18.



Spot prices are on a somewhat wider range in the East. *Coal Age* index remains unchanged at 103, probably due to better bunkerage call and sales of special grades in the Midwest. Spot buying has increased because of a tendency to await any possible freight reductions, which consumers hope may be made, before entering into any seasonal contracts.

Conditions are not improved much on the Eastern sea-

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

Market Quoted	Mar. 1920	Mar. 29 1921	Apr. 19 1921	Apr. 26 1921†	Market Quoted	Mar. 1920	Mar. 29 1921	Apr. 19 1921	Apr. 26 1921†		
Low-Volatile, Eastern											
Pocahontas mine run...	Columbus....	\$2.35	\$3.25	\$3.25	\$3.35	Kanawha lump.....	Columbus....	\$2.95	\$3.25	\$3.25	\$3.50
Pocahontas lump.....	Columbus....	2.60	5.50	5.50	<i>5.25</i>	Hocking mine run.....	Columbus....	2.50	2.25	2.15	2.20
Pocahontas mine run...	Chicago....	2.35	4.15	4.00	<i>3.50</i> @ 4.50	Hocking lump.....	Columbus....	2.75	3.40	3.25	3.35
Pocahontas lump.....	Chicago....	2.60	5.50	4.00	<i>4.50</i> @ 5.50	Pitts. No. 8 mine run.....	Cleveland....	2.35	2.25	2.25	<i>2.15</i> @ 2.80
*Smokeless mine run....	Boston....	—	5.85	5.85	<i>6.00</i> @ 6.00	Pitts. No. 8 lump.....	Cleveland....	2.60	3.50	3.65	<i>3.25</i> @ 3.50
Clearfield mine run....	Boston....	2.95	2.50	2.35	<i>1.85</i> @ 2.50	Midwest					
Somerset mine run....	Boston....	2.95	3.00	3.05	<i>2.25</i> @ 3.35	Franklin, Ill., mine run....	Chicago....	2.35	3.40	3.40	<i>3.25</i> @ 3.50
Pool 1.....	New York....	2.95	3.30	3.50	<i>3.25</i> @ 3.75	Franklin, Ill., lump.....	Chicago....	2.55	3.55	3.45	3.65
Pool 1.....	Philadelphia....	2.95	3.50	3.50	<i>3.35</i> @ 3.60	Central Ill., mine run....	Chicago....	2.35	2.25	2.50	2.50 @ 3.00
Pool 1.....	Baltimore....	2.95	3.15	3.25	<i>3.10</i>	Central Ill., lump.....	Chicago....	2.55	2.85	3.00	2.75 @ 3.25
Pool 9.....	New York....	2.95	2.75	2.80	<i>2.60</i> @ 2.85	Ind. 4th Vein mine run....	Chicago....	2.35	2.65	2.73	2.50 @ 3.00
Pool 9.....	Philadelphia....	2.95	3.15	3.00	<i>3.00</i> @ 3.15	Ind. 4th Vein lump.....	Chicago....	2.55	3.15	3.25	3.00 @ 3.50
Pool 9.....	Baltimore....	2.95	2.90	3.05	<i>2.90</i> @ 3.00	Ind. 5th Vein mine run....	Chicago....	2.35	2.50	2.75	2.50 @ 3.00
Pool 10.....	New York....	2.95	2.65	2.55	<i>2.35</i> @ 2.75	Ind. 5th Vein lump.....	Chicago....	2.55	2.75	3.00	2.75 @ 3.25
Pool 10.....	Philadelphia....	2.95	2.75	2.80	<i>2.65</i> @ 2.80	Standard mine run....	St. Louis....	2.35	1.85	1.95	<i>1.75</i> @ 1.85
Pool 10.....	Baltimore....	2.95	2.50	2.50	<i>2.40</i> @ 2.50	Standard lump.....	St. Louis....	2.55	2.45	2.25	2.25 @ 2.50
Pool 11.....	New York....	2.95	2.20	2.15	<i>2.10</i> @ 2.25	West Ky. mine run....	Louisville....	2.35	2.50	2.25	<i>1.85</i> @ 2.60
Pool 11.....	Philadelphia....	2.95	2.00	2.30	<i>2.40</i> @ 2.50	West Ky. lump.....	Louisville....	2.60	3.00	3.00	<i>2.50</i> @ 3.50
Pool 11.....	Baltimore....	2.95	2.30	2.25	<i>2.25</i> @ 2.35	South and Southwest					
Pool 71.....	New York....	2.95	3.00	2.95	<i>2.70</i> @ 3.25	Big Seam mine run....	Birmingham....	2.45	2.85	3.05	<i>2.70</i> @ 3.25
Pool 71.....	Philadelphia....	2.95	3.00	3.25	<i>3.25</i> @ 3.35	Big Seam lump.....	Birmingham....	2.75	3.15	3.60	3.25 @ 4.00
Pool 71.....	Baltimore....	2.95	3.00	3.10	<i>3.00</i>	S.E. Ky. mine run....	Louisville....	3.00	2.65	2.75	2.65 @ 2.85
High-Volatile, Eastern											
Pool 34.....	New York....	2.50	2.00	1.95	<i>1.75</i> @ 2.25	S.E. Ky. lump.....	Louisville....	3.25	3.55	3.75	3.50 @ 4.00
Pool 34.....	Philadelphia....	2.50	2.15	1.95	<i>2.00</i> @ 2.25	Kansas mine run....	Kansas City....	3.50	4.50	4.40	4.25 @ 4.50
Pool 34.....	Baltimore....	2.50	2.05	2.05	<i>2.05</i> @ 2.25	Kansas lump.....	Kansas City....	4.00	5.50	5.00	<i>5.00</i>
Pittsburgh mine run....	Pittsburgh....	2.35	2.25	2.25	<i>2.00</i> @ 2.50	* Gross tons, f.o.b. vessel, Hampton Roads. Quotations on Pocahontas mine run, Boston market, heretofore quoted included both Pocahontas and New River and will henceforth be quoted as West Virginia "Smokeless."					
Pittsburgh sc'd gas.....	Pittsburgh....	2.35	2.85	2.85	<i>2.75</i> @ 3.00	† Advance over previous week shown in heavy type. Declines in <i>italics</i> .					
Kanawha mine run....	Columbus....	2.70	2.35	2.00	<i>2.25</i>						

* Gross tons, f.o.b. vessel, Hampton Roads. Quotations on Pocahontas mine run, Boston market, heretofore quoted included both Pocahontas and New River and will henceforth be quoted as West Virginia "Smokeless."
 † Advance over previous week shown in **heavy type**, decline in *italics*.

adjustment of freight rates from mines to the lower docks on cargo coal and unwillingness of the upper docks to take on new coal until they see a disposition on the part of inland customers to place a few orders.

Central Pennsylvania producers are interested in a hearing for increased rates for New England roads, which would hurt their trade in competition with the water route, the latter being already attractively low because of the abundance of vessels available for coastwise trade. The all-rail movement to New England shows no recovery, 2,219 cars going forward in the week ended April 16, compared with 2,274 the week before.

Tidewater accumulations are increasing. Hampton Roads dumpings for the 7-day period ended April 21 were 376,985 tons. The British strike has so far caused the movement of only a few additional cargoes.

ANTHRACITE

Production continues at a satisfactory rate. The output for the week ended April 16 was 1,885,000 net tons, a slight increase when compared with the preceding week.

Independent operations are being resumed at prices slightly in excess of company schedules. Demand on the retail dealers is growing in an encouraging manner and points to a fairly active season. In New England, where consumers had been awaiting still further price cuts, the fact that bids for municipal buildings, schools, etc., showed prices well up to the established retail figure, evidently dispelled this idea, and demand is much improved. Philadelphia retailers are openly cutting their price schedules in an effort to stimulate trade, which has been very sluggish, except for a temporary spurt caused by a cool spell.

COKE

Beehive production continued to show the effect of the severe industrial depression during the week ended April 16, when only 74,000 net tons were produced—even less than the low record touched earlier in April. Spot Connellsburg furnace has declined to \$3.30@\$3.50; contract furnace is nominal, \$3.75@\$4 and spot or contract foundry, \$5@\$5.50, but all buying is confined to very small lots.

Reports From the Market Centers

New England

BOSTON

Strong Efforts to Move Spot Coal—Receipts Diminish—Prices Depressed in Certain Directions—Anthracite Movement Slightly Better—Retail Demand Improves.

Bituminous—It is still a dragging market. For the most part buyers are keeping aloof, and there is next to no interest in current quotations. Here and there are manufacturers who have a slight spurt in their special lines and for that reason are beginning to inquire for contracts, but in many cases the spread between spot prices and those for extended delivery is so great that the buyer decides to wait.

Several of the largest operating interests in central Pennsylvania are making a determined drive to place May output, but except in rare instances they have not been quite willing to go the lengths necessary to induce purchases.

Figures show a steady decline in all-rail tonnages via the Hudson River gateways. Clearances coastwise show a similar drop, and it is hard to see where there can be any material gain in May. It is said that but four cargoes have been shipped offshore because of any direct reaction from the British coal situation, and these were to British coaling stations in ports like Teneriffe and Port Said. It remains for the smokeless shippers, therefore, to pound the New England market all the harder in their strenuous efforts to move accumulated coal at the piers.

At certain of the Tidewater rehandling piers, such as at Providence and Boston, there have been extremely low

prices made for the purpose of capturing tonnage that of late years has been delivered all-rail. The 40 per cent advance in railroad rates last August and the great surplus of bottoms have made a new opening for water coal, especially from Hampton Roads, and so long as the Pocahontas and New River shippers are disposed to make sacrifices in order to keep in operation, it will be very hard for the higher grade Pennsylvania coals to retain their footing. This situation is realized and in more than one quarter there have been depressed prices both all-rail and by water. Mine prices are shown in the Weekly Review.

At Hampton Roads \$6 f.o.b. vessel is freely quoted, and even \$5.50 has again been rumored. The higher of these prices would figure less than \$2.80 net at the mines. Current quotations on the best grades are very spotty, a few "market" cargoes having contributed further to this result. The agencies do not know where to turn to place coal. On cars for inland delivery Pocahontas and New River have been quoted this week down to \$8, and in certain cases \$7.75.

Anthracite—Shipments of domestic sizes have improved slightly. Several producing companies have put a proportion of broken size back through the rolls and this has meant a gain for egg and stove, the sizes in shortest supply. Unfavorable weather is again interfering with the movement of tons, and on the other hand Tidewater dealers are showing much more interest in shipments than a fortnight ago.

Retail trade here continues to show steady gain. The fact that bids for municipal buildings, schools, etc., showed prices well up to the established retail figure has had a favorable effect upon householders in general.

Tidewater—East

PHILADELPHIA

Anthracite in Moderate Demand—Pea and Steam Sizes Show Further Weakness—Bituminous Little Changed—Strong Efforts Made for Sales.

Anthracite—Moderately cool weather is still helping the demand, but that the inquiry for fuel is tapering off is generally in evidence. The trade has worked hard to get storing orders and so far the dealers have been about able to keep their equipment going at an ordinary rate, but it is almost a day-to-day business.

The moderate demand is also having its effect on retail prices, for while the general standard is ostensibly \$13.25 for egg, \$13.75 for stove and nut, and \$11 for pea, dealers almost without exception are shading these figures. The price cutters, and they are not among the smallest dealers either, are openly advertising egg at \$12.75, stove and nut \$13 and pea \$10.25, and this latter size occasionally shaved 25c. less. On pea size they can easily do this, as there is a considerable amount of independent offering at \$5.50.

Shipments of all sizes are coming into the city freely and dealers are gaining the impression that the distant markets are not taking coal with the same eagerness as a year ago. Some of the independents who are endeavoring to conduct their business on the allotment basis are having difficulty to keep their trade taking all that is due them.

The anthracite tax bill seems entirely likely to become a law, as it is a favorite measure of the Governor. The rate has been reduced to one and one-half per cent, and the clause making it illegal for dealers to add it to the retail price has been eliminated.

Steam coals are dull and there is a surplus of every size that is going into storage. The independents have almost exhausted their limited storage room and small sizes are at times offered at a bargain, with \$3 being the

favorite price for occasional cars of buckwheat.

Company prices per gross ton for line shipment and f.o.b. Port Richmond for Tide are as follows:

	Line	Tide
Broken	\$7.25	\$ 9.95
Egg	7.25	9.95
Stove	7.55	10.20
Nut	7.55	10.20
Pea	5.90	8.30
Buckwheat	3.50	6.00
Rice	2.50	5.00
Boiler	2.00	4.40
Barley	1.50	3.90

Bituminous—There actually seems to be a little more activity, but we feel certain it is due more to the almost frantic efforts of sales departments to get business rather than any real improvement in demand. Most of the buying is at the market, as there are few contracts, proportionately, in existence. Outside of the textile trade, and only that business in certain lines, there is little increased activity industrially.

Spot prices are but little changed, but the different pools seem to cover a wider range. Quotations are shown in the Weekly Review.

There have recently been some instances where blocks of coal of 1,000 tons or so have been sold for considerably less than the regular spot quotation, and we have heard of 25 cars of Pool 10 closed at \$2.25. There is probably quite a little of this kind of trading by concerns, who having gotten a few orders at the market, take on a little more tonnage at a concession to keep their plants going.

NEW YORK

Anthracite Demand Grows—Domestic Coals Scarcer—Independent Operators Sold Ahead—Steam Coals Stronger—Bituminous Outlook Improves—Production Too Low.

Anthracite—There is an active market for domestic coals. All company fuels move readily and independent is becoming scarcer, due to limited production because of the idleness of many collieries. The demand for stove and egg has become so strong that many of the smaller operators are sold ahead for three or four weeks.

No official announcement has come out regarding the usual monthly increase of 10c. per ton. Dealers are rushed with orders but are getting just enough coal to keep them busy. Complaints of dirty coal are heard and in some instances consumers are holding back payments until the coal is screened and an allowance made.

Current quotations for company coals, per gross ton, at mine and f.o.b. Tide-water, lower ports, are as follows:

Broken	\$7.10 @ \$7.75	\$ 9.71 @ \$10.36
Egg	7.10 @ 7.75	9.71 @ 10.36
Stove	7.35 @ 8.10	9.96 @ 10.71
Chestnut	7.40 @ 8.10	10.01 @ 10.71
Pea	5.65 @ 6.00	8.12 @ 8.47
Buckwheat No. 1	3.50	5.97
Rice	2.50	4.97
Barley	1.50	3.97
Birdseye	2.50	5.02

Quotations for independent stove and chestnut range \$7.75@\$8. Pea moves slowly and good grades of independent are quoted \$5@\$5.50.

Steam coals are picking up. The companies are obtaining circular for all

they can move and good independent grades of buckwheat No. 1 were at 10c. above company circular. Rice is going strong at full company prices of \$2.50 and barley at \$1.50.

Bituminous—It is thought that there will soon be a wave of concerted buying. Buyers are keeping close watch on production and realize that unless there is a tremendous increase in mining there will not be sufficient coal produced to meet requirements.

The continuation of the trouble in the British mines resulted in increased inquiries here and the placing of some orders. At the end of the week, press dispatches told of the arrival in Liverpool of the first cargo of American coal sent abroad since the inauguration of the present trouble.

The stronger tone to the market is attributed to the lack of coal more than to any increased demand. Large consumers who have been reluctant to receive new tonnage unless it could be obtained at the lowest figures and because of the good grades of coal available at low prices, would not think about contracts.

Some operators have practically withdrawn their contract quotations and will depend upon the spot market. Cheaper coals are almost out of the market, as there is no call for them when it is possible to get good grades at present figures.

Quotations at this Tidewater range about as follows: Pool 9, \$6.25@\$6.35; Pool 10, \$5.95@\$6.10; Pool 71, \$6.25@\$6.35, and Pool 11, \$5.40@\$5.50. Mine quotations are reported in the Weekly Review.

BUFFALO

Consumers Indifferent—No Contracting—Spot Demands Are Small—Anthracite Market Quiet—Complaint on Prices—Lakes Tonnage Is Short.

Bituminous—“Indifference on the part of consumers is something terrible,” reports a local shipper. “I sent out 1,200 circulars lately to the consuming trade and I sold exactly one car on the venture. As it was coal of my own mining I lost money on it.” This is typical of conditions in the Buffalo coal trade. As yet the consumer is thinking only of the time when coal sold high. If something had not been saved then the coal trade would be bankrupt now. As it is, the trade generally agrees that conditions may be unimproved for some months yet. Prices do not really decline as they are already at the bottom.

Possibility of lower freight rates is holding up all branches of the market and whether anything is done or not the agitation will keep back all buying except that for immediate needs. Prices are unsteady at former figures, \$3.50 for Youghiogheny gas lump, \$3 for Pittsburgh and No. 8 steam lump, \$2.60 for all mine run and \$2 for slack, to which add \$2.36 to Allegheny Valley and \$2.51 to other coals, to cover freight.

Anthracite—With coal in good sup-

ply, the trade is rather quiet. Complaint is heard everywhere of the high prices when everything else is coming down. People are forgetting that this coal did not go up as most other things did and are making unfavorable comparisons with present bituminous prices.

The independent premium is gone and some of the mines are shut down. Lakes loading continues brisk, although tonnage is short. No rates for freight have been made although they are likely to be on last season's level. Upward of 300,000 tons have been loaded but only a few cargoes have cleared, these amounting to 80,544 tons, of which 27,400 tons are for Chicago, 26,068 for Duluth and Superior, 14,300 for Fort William, 10,000 for Sheboygan and 2,776 for the Soo.

Coke—Demand continues light and local jobbers are making few sales.

HAMPTON ROADS

Accumulations Increase—British Strike No Bolster—Prices Unchanged.

Continued dullness featured the week ended April 21 expectations of stimulated trade on account of the British coal strike having proved vain. Only a few extra cargoes were shipped during the week to ports formerly served by the mines of Great Britain.

Pools 1 and 2 remained at \$6.25@\$6.50, with other pools approximately \$1 lower. There were few inquiries, and little demand. Accumulations at Tide increased somewhat, while vessel tonnage awaiting cargo remained steady. Two cargoes were shipped to Canada, the first to the Dominion for many months.

The Virginia Ry. piers have resumed the two-shift plan of operations, which was abandoned several weeks ago as an experiment. All the local piers now are running with two shifts per day.

Figures for the three piers for the week ended April 21, are as follows:

C. & O. piers, Newport News—	2,559
Cars on hand.....	127,610
Tons on hand.....	3,694
Cars dumped, April 1 to date.....	191,845
Tons dumped, same period.....	1,680
Tonnage waiting.....	
Virginian Ry. piers, Sewalls Point—	
Cars on hand.....	1,357
Tons on hand and in transit.....	80,000
Cars dumped, April 1 to date.....	3,667
Tons dumped, same period.....	183,355
Tonnage waiting.....	6,900
N. & W. piers, Lamberts Point—	
Cars on hand.....	1,953
Tons on hand.....	123,558
Cars dumped, April 1 to date.....	3,707
Tons dumped, same period.....	363,929
Tonnage waiting.....	26,500

BALTIMORE

Market Dictated by Needs of Seller—Range on Spot and Contract Offerings—Hard Coal Producers Deny Poor Preparation.

Bituminous—The needs of the seller rather than those of the consumer are dictating the market here as yet. The line of foreign inquiry that came following the outbreak of the British strike gave hope that a strong line of contract closings would follow at once. This failed to materialize, however, and selling has to be urged in the face of a liberal supply.

Talk that the New York and Philadelphia situation is tightening has so far failed to create any effect here. Prices for both steam and gas coals on contract are today nearer spot prices than for several weeks past. Best gas coals, for instance, are today commanding from \$2.90@\$3 for lump, and around \$2.40 for mine run. Best lump over the year, while holding around \$3.50@\$3.75, has been offered in fairly large quantities as low as \$3.15. The best steam coals are around \$3, with some shading off 10c., in the spot market, while the contract range is \$3.35@\$3.75 for the most part. Export business is light, the movement to April 16 being only 16,832 tons cargo and 2,403 tons bunker.

Anthracite—Dealers report a very light demand, and at the same time note rather poor deliveries from the mines on the little business being placed. The shipments North at this season, however, nearly always makes for light delivery here.

The Baltimore Coal Exchange is receiving replies from mines to the general complaint that poorly prepared coal is being shipped in. The replies so far received for the most part deny that the particular operation has sent out poorly prepared coal, and in some cases invitations are given for inspection of the actual operations at a time "when the stage is not set."

Northwest

DULUTH

First Cargo Arrives—Docks and Domestic Trade Very Light—Employees Refuse New Work Schedule.

Cargoes started arriving last week, the first boat to dock being the *Str. Price McKinney* for the Great Lakes Coal & Dock Co. at Superior. Repair crews are busy on the docks getting ready for the season of navigation.

Shipments continue very light, most of the bituminous moving being the usual sale of screenings each spring to large consumers. Anthracite price dropped recently 30@\$60c.

Weather for the past week has been very favorable for this time of the year and the domestic trade is very light on this account. Coal dock employees refused to sign the schedule of wages and working conditions for the coming year. This schedule was presented to the men some time ago and was to have been either rejected or accepted by April 15. The men have met this proposed schedule with a strike threat which if put into effect May 1 will tie up the docks and seriously hamper the already slow movement of cargoes.

MILWAUKEE

Buyers Holding Off Until May Prices Are Fixed—Cargoes of Soft Coal Continue to Arrive.

Price announcements on May 1 will open the way for a reasonable renewal

of business, as many consumers of both hard and soft coal have been holding off in order to reap the benefit of any reduction that may be made.

This disposition to dodge purchasing was exemplified during a recent two-day blizzard. When a snow blockade became apparent, dealers were showered with orders for immediate delivery. However, when the first burst of sunshine came, there was an equal urgent rush of cancellations, which left the coal office slates clean.

Dock men are preparing to promote a vigorous campaign for early delivery to supply the coming season in order to avoid the complications which were met at the close of the last season, when priority shipments were necessary to insure a proper supply. Thus far in April five cargoes of soft coal have reached port. No hard coal has been received as yet.

MINNEAPOLIS

Consumers Refuse to Heed Warnings of Coming Shortage—Business at Standstill—Lakes Program Drags.

One might suspect that the members of the coal trade were engaged in a gigantic poker game, from the situation which now prevails in the Northwest. For there is what might be deemed "bluffing" to a finish on the subject of whether the fall will see a coal shortage again as did last year. To continue the simile, all concerned seem inclined to "stand pat" and wait for a showdown.

Dire predictions are being published in the Northwest that the trades must get in their orders early, and stock as far as possible, or they will be left without fuel in the fall. Jobber and retailer are perfectly willing to do their part only when the succeeding member of the trio, the ultimate buyer, does his. But the consumer seems to think that at the close of one season, it is altogether too soon to take up preparation for the next.

So buying is desperately slow. There is almost no contracting for future needs. Railroads have sufficient left on old contracts so they need not come into the market for some time. Steam users are well supplied and see no occasion for hurrying into a contract. Such buyers are not convinced that present prices are at the bottom.

In the dock situation things are abnormal now. There is less coal moving forward than common for the reason that no one seems anxious to take on coal at the docks. There are fewer vessels available, because of the dullness of the iron ore market. No one wants ore at the Lower Lakes ports, and many vessels are tied up for lack of business.

Despite this explanation of the causes, it will avail little if winter finds the Northwest with a limited and inadequate supply. The serious question whether it is assuming a reckless hazard not to stock coal early, is one which cannot be answered. The unknown quantity enters into the situation too

largely. Some claim that the coal trade has set up the shortage cry so often that they have no business to do so again, and that they will not receive nor deserve credence if they do.

Anthracite is hardly moving to the docks and soft coal is but little better. All-rail fuel is not coming to this territory in any tonnage, as the mines are running on very short production. All-rail southern Illinois coal is selling at the mine at \$3.65 for the month and is to advance 20c. on May 1 and 15c. or more on June 1. But the selling in this district is very light, and shows no sign of improvement, despite a more active situation elsewhere. Contracting at a standstill.

Inland West

CLEVELAND

Output Rises As Inquiries Improve—Slack Market Weakens—Rail Lakes Rates a Factor.

Bituminous—The gradually rising level of industrial activity, led by the improvement in the automobile, tire and accessory industries, evidently is being reflected in a perceptible increase in the demand for steam coal. Lakes shipments are only partially responsible for the betterment. Inquiries are distinctly more frequent and an increase in contracts with smaller consumers is reported.

The recent show of strength of the slack spot market is subsiding. The firmness was occasioned by the lack of demand for prepared sizes which made the slack supply less than the demand. Greater production has mended this shortage and the price range is now \$1.85@\$2.10. Other steam spot prices remain unchanged.

Pocahontas and Anthracite—Wholesalers, jobbers and retailers are signing contracts for the year's supply of Pocahontas at \$3.50 mines. Last year's contract prices were \$4.25@\$4.50. Retail Pocahontas has been lowered, as the demand continues to taper. The April circular of anthracite shows the mine prices for egg \$7.10@\$7.35.

Receipts of bituminous coal during the week ended April 16 amounted to 585 cars, industrial, retail 274 cars, total 859 cars, as compared with 815 cars during the previous week.

Lake—Coal men here believe that activity in the northern Ohio soft coal market in the next few weeks depends in considerable measure on the result of appeals for freight rate reductions from the mines to Lower Lakes. A committee of eight eastern roads have submitted a proposal to the commerce commission with respect to adjustment of these rates. At the present time coal is being sent to the ports at a fair rate of speed and is arriving more rapidly than it is being loaded because of lack of tonnage. Only the opening of the ore season will supply coal shippers with a normal amount of vessels. Ore shipments have begun but

only on a small scale and the depression in the blast furnace industry offers no prospect of an early or large ore movement. More than 600,000 tons of coal have been dumped at the Lower Lakes ports.

COLUMBUS

Prices Are Still Unchanged—Production Is Small—Lakes Trade Slow to Open—Steam Business Is Quiet.

With production at a low point, trade is at a standstill, and everyone is playing a waiting game. The feeling in coal circles has improved slightly and there is now more optimism shown on all sides.

Steam trade is quiet in every particular. Plants which have resumed operations are placing only an occasional order. Reserves are fairly good. This is especially true of the larger consumers, some of which have resumed operations within the past two weeks.

Domestic is also quiet as dealers are laying off the market. Householders are waiting until later to lay in their winter stocks. Pocahontas is the only strong point. Retail prices are fairly steady. Hocking lump is \$6.75, West Virginia splints, lump \$7.50@\$7.75, Pocahontas lump \$9.50 and egg anthracite sells \$14.50 with chestnut at \$14.75.

The Southern Ohio Coal Exchange reports the output for the week ended April 9 at 103,692 tons out of a capacity of 623,614 tons from the 392 mines reporting. No market was the cause for a loss of 494,518 tons.

Lakes trade is showing no activity outside of the loading of a few vessels in the lower ports. With the ore trade dull, it is believed there will be very little activity before May 15.

CHICAGO

Steady Improvement Predicted—Contracts Are Being Signed—Smokeless Strengthened.

One or two large industrial concerns have placed contracts during the past week. The average contract does not call for full requirements. Purchasing agents of these companies have planned to contract for one-half to three-quarters of their ordinary requirements and to buy the balance on the open market. In view of the present outlook on the coal situation, it is not expected that this plan will work out with much success as there is bound to be a decided coal shortage immediately upon the resumption of manufacturing.

The domestic market continues to be in the doldrums. Dealers find it almost impossible to prevail upon their customers to buy coal. Numbers of the smaller concerns have their bins nearly empty of bituminous. Anthracite is moving in large volume as is always the case at this time of the year.

There has been some stiffening in Pocahontas as well as eastern Kentucky. The former coals are strengthened purely on account of the strike in England. Retailers are afraid that if they do not get their coal now,

it will move forward to the seaboard, consequently those who have not already closed contracts are buying on the open market in volume enough to make spot quotations on Pocahontas mine run firm from \$3.50@\$3.75. Kentucky block, which is growing in favor in the Chicago market, has been very weak until now, but the situation has strengthened because of the opening of the Lakes season, when practically all operators producing the better grades of Kentucky block will have an unlimited outlet for their coal in the Northwest.

The whole coal fraternity in Chicago, taking in retailers, operators and wholesalers, believe that the worst is over so far as market conditions are concerned and that a steady improvement will develop from now on.

ST. LOUIS

Cool Weather Stimulates Domestic—Steam Sizes Heavy—Early Shortage Appears a Certainty.

Cool weather has materially helped the domestic market. Orders have been small, but have enabled operators to get better working time. In addition, results of advocating early storage are beginning to be felt.

Dealers have made announcements that there will be an increase in the price of Carterville of 25c. on May 1, occasioned by a mine advance of 20c. per ton. This has helped the St. Louis condition considerably. The present price is \$7.25. There is a fairly good movement of Mt. Olive for local domestic immediate use and a little going in storage. The present price on this is \$6.

The Standard situation is a bad one. There is very little moving for domestic locally, but a little is moving out into the country. Steam business is not good and there is nothing to indicate that it will show much improvement. Just the normal tonnage that has been used in the past 4 or 5 months seems to be in the market, and steam sizes are beginning to get heavy.

Anthracite continues to come in small lots. Orders for something like 50 cars of West Virginia smokeless were placed this week, but there is nothing to indicate that the demand will be very heavy. Coke seems to be growing in demand, both gas-house and byproduct.

CINCINNATI

Market Shows Signs of Firming Up—Spot Demands Increase as Reserves Are Picked Up—Contracting Inactive.

A somewhat stronger undercurrent was noted in the coal trade here last week, though there was not much price change. Some of the wholesalers were inclined to give credit to the general and generous distribution of the warning sent out by the National Coal Association which showed that the weekly average output was falling behind and what may be expected in the future. Each week shows more spot buyers coming into the market, which is taken as a good indication that stock piles are getting near the point of exhaustion.

Yet there is almost a total lack of contract taking or inquiry along that line.

Bituminous lump is still draggy, with spot sales as low as \$2.75 and up to \$3.25; contract, \$3.75@\$4; mine run spot, \$2.10@\$2.35, contract, \$3 and up; nut and slack, \$2@\$2.25 for spot, and contract \$2.75 and up. Smokeless lump and screenings are practically off the market. Smaller companies have been offering mine run as low as \$3, but the average price is being maintained about \$3.50.

Though there has been no change in retail prices since the reduction of ten days ago on bituminous and smokeless mine run, retailers say that they have noted no quickening of demand.

DETROIT

Bituminous Selling Very Slowly—Little Interest in Market—Receipts Much Below Normal.

Bituminous—Buyers are still holding off on purchase of steam or domestic. Wholesalers and jobbers are meeting with little success in the effort to stimulate business and are showing a disposition to wait for the demand to broaden, rather than to attempt forcing coal on reluctant or indifferent buyers. Receipts fall far short of the normal volume at this season of the year. Little coal is arriving except such stock as has been sold before it leaves the mines. In consequence, free coal on tracks in or around the city is scarce.

Operating at a greatly reduced production basis, many factories and industrial plants are reported to be consuming reserves without replacing them. Later when the storage piles are gone, jobbers look for a buying demand which, they fear, some difficulty will be experienced in satisfying, particularly if the improvement in business, meantime, develops to a point where there is anything like a normal use of transportation facilities.

Smokeless lump and egg is quoted at the mines at \$5, mine run is \$3.50 and nut and slack \$2.25. Three-inch lump from Ohio, Kentucky and West Virginia holds around \$3.40, 2-in. lump is \$3.25, 1½-in. is \$3.15, ¾-in. is \$3.05, mine run \$2.50 and slack about \$2.

Anthracite—Demand of household consumers for prepared sizes continues slow, despite a brief stretch of colder weather early in the week.

South

BIRMINGHAM

Domestic Demand Fair—Steam Weak and Uninteresting—No Contract Demand—Operations About One-Third Normal.

There is a fairly good demand for lump and nut, in fact there is sufficient business offered to take care of all the better grades being mined at this time and the anticipated output pending the resumption of commercial operations.

Contracting for medium grades has progressed satisfactorily in view of the uncertainty attending the operation of commercial mines.

Coal men do not offer any predictions of a definite nature as to when there will be a revival in the steam coal market, which is now painfully quiet. The whole situation is dependent upon a general resumption in industrial lines and an increase in the business of railroad and shipping interests. However, it is the conviction of well-informed men in the trade here that the demand for commercial coal will not closely approach normal this year.

Mining operations continue on a basis in line with trade requirements and there is little coal being mined for which there are not orders in hand. Labor supply is good, and there is little disposition on the part of employees to leave, as there is no more favorable field of action. In most camps the mine workers are exempted from the payment of house rents and charges for water and lights, and many other concessions are granted to lighten the cost of living as much as possible.

LOUISVILLE

Optimism Shown Concerning Future Developments—Higher Prices in View—Demand Slightly Improved.

Several operators are refusing to accept long contracts, feeling sure that delayed buying will result in higher prices later on, with a strain on traffic facilities in handling rush coal.

Lakes movement is increasing, and this along with better industrial demand, and some little stocking on the part of domestic consumers, is causing the general feeling in the coal trade to be better. However, industrial conditions are such that wage earners are not in position to do much stocking right now, as many are out of work, or working part time.

Average prices in the eastern Kentucky fields show lump around \$3.50@\$4 for the best gas grades; mine run, \$2.65@\$2.85; screenings, \$1.90@\$2.15. Elkhorn prices are about 20@25c. lower, that field taking West Virginia prices, as most of its production moves out to the East and North.

Southwest

KANSAS CITY

Demand Has Again Slackened—May Schedules to Be Higher—Anthracite Available.

What little improvement was reported last week seems to have died out and the demand has slackened off materially on all grades. Steam plants who put in storage coal last summer and fall have started picking it up and demand for domestic is almost at zero.

Retail yards in Kansas City are doing practically nothing. There is some smokeless being delivered, but aside from this there is no demand. For the first time in four years dealers are able

to get prompt shipments of Pennsylvania anthracite, but on account of the high freight rate and poor preparation we have had for the past two or three years, dealers are unable to place much of this.

Arkansas smokeless advances 25c. on May 1 and it is expected that other grades will increase soon. For April shipment, Arkansas smokeless lump is \$6, mine run \$4.50, slack \$3.50, Kansas lump and nut \$5, mine run \$4.25@\$4.50, mill \$4, slack \$3.75; North Missouri lump \$4.50, mine run \$4, washed slack \$4.05.

West

DENVER

Production Increasing—Lignite in Sharp Competition—Bituminous Outlook Improves.

Production is gradually mounting to a point where operators believe they

will have less serious obstacles to overcome in keeping their organizations intact this summer than was anticipated a month ago. The output for the week ended April 9 was 145,000 tons of a possible 315,609 tons. A month ago production was down to 120,000 tons.

Bituminous lump is selling \$5.50 at the mine, against \$5.65 asked by one or two companies. Buying is a little better and indications are that a firmer market will come along in May.

The lignite field is showing an actual output of about half of its capacity. Competition of an inferior grade at a price below the recognized figure is tending to upset the small trade of this kind during the storage season.

Routt County, cut off temporarily by a heavy snow, is mining but little coal. Efforts to have the road opened are being urged, although the line is in the hands of a receiver. Ordinarily, it will require another two or three weeks before production, which averages 25,000 or 30,000 tons a week, can be resumed on the old scale.

News

From the Coal Fields

Northern Appalachian

PITTSBURGH

Production Remains About 35 Per Cent—Hope of Lakes Rate Adjustment—Market Is Narrow.

Operations average approximately 35 per cent of rated capacity, there having been no change of any consequence for a month past. A number of mines have been closed continuously, but the majority are operating part time.

Some hope is still entertained that before the middle of the season some action will be taken by the Interstate Commerce Commission in the matter of adjusting rates on Lakes coal from the various districts to an equitable basis. The Pittsburgh district feels that its rate is too high to give it the share of the business to which it is logically entitled. Very little has been done in Lakes buying in any district, buyers being apathetic while transportation companies are indisposed to get their boats into commission since there is no prospect of much ore movement in the fore part of the season.

Labor conditions do not seem to be altered materially by the reduction made in the Connellsville field April 1, that field being non-union. It is pointed out that the Frick interest represents fully half the Connellsville operations, and it has not reduced wages.

The market remains very narrow and sales are hardly sufficient to define prices. In general sales are below the full cost of production. Prices are shown in the Weekly Review.

CENTRAL PENNSYLVANIA

More Mines Working, but Production Falls—Interest in Rates Hearing.

Reports indicate that a greater number of mines were in operation during the second week of April than during the month of March but the output has fallen, amounting to 13,193 cars.

Operators are much interested in the hearing to be held in New York on April 28. The New England railroads, which compete with the water carriers from the West Virginia fields, are seeking increased rates for hauling coal. If the increase is recommended, it will go to the Interstate Commerce Commission for ratification. The coal from West Virginia is shipped from Baltimore and other ports by water and the central Pennsylvania field is the principal competitor.

CONNELLSVILLE

Spot Furnace Coke Lower—Light Demand All Around—Resumptions After Temporary Closing.

The indisposition of men at three or four plants to accept the wage reduction made by practically all independent operators April 1 has disappeared and the works that have orders are running as formerly. One large plant closed to make a change in equipment and when it was ready to resume the men were also ready.

Some small lots of spot furnace coke have been sold at \$3.30, against the recently reduced price of \$3.50. Competition for the very small amount of business going is between very few operators, the majority not considering it worth while to try to do business.

Conditions in foundry coke are disappointing. Demand for spot lots has dwindled to small proportions, and this indicates extremely light consumption, for stocks the foundries had Jan. 1 are believed to be pretty well exhausted and shipments on contract are very light. The price, however, has not yielded, favorite brands commanding \$5.50 while ordinary selected 72-hour foundry brings \$5. Coke at below that is regarded as not strictly standard.

We quote spot furnace coke \$3.30@\$3.50, contract furnace nominal at \$3.75@\$4, and spot and contract foundry \$5@\$5.50.

The *Courier* reports production in the week ended April 16 at 23,260 tons by the furnace ovens, and 23,960 tons by the merchant ovens, making a total of 47,220 tons, an increase of 12,455 tons.

UNIONTOWN

New Low Price Spots Develop—Lakes Buyers Favoring Other Fields—Coke Inactive.

Inquiries for coal continue to show a slight increase but no substantial number of sales have resulted. On the other hand there has developed a tendency on the part of some operators to enter into a bidding contest for the little business available. This situation prevails largely in the coke trade but also has found a reflection in the coal market, steam being quoted down to \$1.60, the lowest figure yet reached. Other operators, however, are quoting up to \$2. Byproduct has a low quotation of \$2.25 and up to \$2.75.

Furnace coke quotations by some independents have reached \$3.50, also the lowest figure touched for that fuel. Quite a number of operators have held to a \$4 minimum for furnace and have steadfastly refused business at a smaller figure. The break, however, has been made. Foundry has a low quotation among the price shading element of \$4.50, with others holding for business up to \$5.50.

Railroads are continuing to bid for all available shipping business. Extensive arrangements are being made by the Pennsylvania to handle coal and coke traffic with the return of normal conditions.

A little activity is being noted in the Lakes trade. Some reports indicate a tendency on the part of buyers to make their purchases from other fields, principally Indiana, Illinois and Ohio, on the promise that freight rates make a decided difference in cost at the piers.

EASTERN OHIO

Production Increases—More Industrial Activity—Negotiations for Freight Reductions Retard Buying.

During the week ended April 16 production was the greatest since the middle of January, notwithstanding the development of some car shortage on the Wheeling & Lake Erie during the latter half of the week because of accumulated loads for Lakes. Production amounted to 296,600 tons, 47 per cent of the rated capacity, and an increase

of 15,000 tons over the preceding week. Railroad fuel declined sharply and shipments to Lakes diminished because of tonnage scarcity. The increase is therefore attributed to a slight improvement in the general industrial situation.

Association mines worked 39 per cent of possible time but produced 48 per cent of rated potential capacity. Based upon the foregoing, it may be asserted that the mines are producing at least 50 per cent of normal.

Some hesitancy has developed on the part of shippers, pending the outcome of present negotiations for reductions in the rail rates on Lakes cargo coal. Furthermore, retail dealers, domestic consumers—in fact most all buyers of coal—are staying out of the market until they are certain that prices have reached bottom, and this procrastination is no doubt augmented by the hope and belief that freight rates generally will be reduced, making possible lower delivered prices.

While inquiries are a little more active, major buying continues to be in the spot market. The stiffening in slack prices has eased off somewhat and the range is now \$1.85@\$2.10. Other quotations appear in the Weekly Review.

UPPER POTOMAC

Operating Conditions Unchanged—Contract Market Sluggish—Better Inquiry Developing.

Only a small percentage of the mines were at work through the week ended April 16. No new contracts have yet been made to amount to anything and the spot demand is unimproved. Pool 11 is \$2.50, Pool 9 \$3 and Pool 1 \$3.25; however, such prices are merely nominal as but little is moving. A better inquiry is gradually developing, although prices offered are yet too low for producers to accept.

FAIRMONT AND PANHANDLE

Export and Lakes Inquiries Appear—Little Business Being Done—Spot Prices are Still Too Low for Consideration.

FAIRMONT

During the latter part of the week ended April 16 production picked up slightly. However, the region has not recovered much from the loss of business following the end of the contract year. Inquiries are appearing from export and Lakes markets, but few contracts have been made so far. Spot prices are so low that little business is being accepted.

NORTHERN PANHANDLE

Some contracts have been placed in the Northern Panhandle region although the volume of coal mined on them has not been sufficient to increase the output. Inquiries appeared to be more plentiful for Lakes coal, but few contracts were being made on any business. Labor troubles were disturbing conditions in a part of the region.

Middle West

MIDWEST REVIEW

Steam Market Shows Signs of Awakening—Retail Trade Still Quiet—Production Low—Better Contract Interest.

While the coal market has shown absolutely no signs of improvement, there has been a very decided betterment in the morale of the average coal man. This paradoxical situation has arisen from the belief that production has slumped to such an alarming degree that soon the mines will have to work 100 per cent of capacity in order to begin to take care of the demand which is heading toward us. It is an actual fact that an improvement in business conditions is under way. For instance, two months ago woolen goods were a drug on the market, whereas, today, we are very reliably informed, practically every woolen mill in the country is oversold. This situation has developed because the woolen industry was among the first affected by the business slump. If this is true of woolen goods, it will be equally true in regard to coal, because the trouble with the woolen goods people was pretty largely a buyers' strike.

The retail trade is still content to worry along with small stocks on hand and practically no orders booked for immediate shipment, although the ordinary operator owning mines in the country, has plenty of orders placed for shipments to move forward in July or later. Retailers report that it is impossible to interest the public in any degree in coal.

The steam trade, while it is still in very poor shape indeed, has shown some signs of awakening. During the past week a number of contracts were reported closed at prices which were fairly satisfactory. Paper mills in this territory appear to be running on an improved basis, operating around 50 to 70 per cent, and the cement manufacturing industry has shown signs of still greater improvement as some of these companies are running full time.

While the railroads have not closed any contracts during the past week, they are fully aware of the true state of affairs and it is expected that a number of important agreements will be closed this week. An operating vice-president of one of the largest roads serving the Midwest admitted this week, that in his opinion, there would be a serious car shortage by September, and consequently a coal shortage, and that his road for one, was going to see to it that it was amply protected by contract.

While it is true there have been some slight improvements in the market, these have only affected directly, a few of the operators which produce the best coal that can be had. A great many of the less favored coal properties are still idle and will continue to be idle until they have succeeded in getting the railroads and public util-

ties to sign contracts for their output. Coal tonnage in Indiana and Illinois, it is commonly expected, will not reach normal figures until July.

WESTERN KENTUCKY

Situation Shows Very Little Change—Slightly Better Domestic Demand—Operators Optimistic.

Contract inquiries are becoming more numerous, and some business is being closed. There has been a slightly better demand for prepared sizes this April than last, due to cold weather, which has caused exhaustion of some consumers' supplies.

Industrial operations are a little better, and railroads are hauling slightly more tonnage, with the result that demand is slightly increased.

The field is getting in approximately two days a week. Operators feel that late stocking demand is going to force a rush, with higher prices and probable car shortage.

It is claimed that the only thing that would improve conditions would be for the railroads to reduce rates for the dull shipping period, as has been frequently suggested. Coal prices cannot come down much further, if any, and at the present time there is not much prospect of any lower freight rates.

Prices show prepared average, \$2.80—range, \$2.50@\$3.50; mine run, \$2.25—range, \$1.85@\$2.60; screenings, \$1.85—range, \$1.50@\$2.35.

SOUTHERN ILLINOIS

Steam Demand Falling Behind Domestic Program—Standard Field Hard Hit—No Contracting.

While steam demand is just about equal to the supply in Southern Illinois, everything indicates that the tonnage of domestic being booked is going to swamp operators in the next 60 days, unless a better steam outlet can be secured. Association mines are getting circular prices but independents are selling 50@75c. lower. Working time averages two or three days throughout the Williamson and Franklin county fields. Screenings are in good demand.

Duquoin field conditions show little improvement. Mt. Olive output was better during the past week on account of the cold spell which stimulated retail buying. A good tonnage of steam and domestic has been moving to Chicago and the Northwest. It appears a certainty that by July 1 domestic sizes will be at a premium on account of the lagging steam market.

There are idle mines everywhere in the Standard district and the few that are working have a hard time moving any sizes. The railroad tonnage is rather light. It will be some time before much price improvement can be expected for domestic sizes. Spot prices are shown in the Weekly Review.

Railroad fuel is giving some concern to large domestic buyers and steam users, inasmuch as but few roads have signed any contracts. It will be remembered that the Frisco R.R. was the only road which had the foresight to

contract for a sufficient supply last year. Other roads were caught napping and had to enter the high market or confiscate coal, to the discomfiture of commercial buyers.

Middle Appalachian

HIGH-VOLATILE FIELDS

Inquiries Increasing—Production Slightly Larger—Better Tone to Market.

KANAWHA

During the latter part of the week ended April 16, production was down to about 8,500 tons daily, reflecting to what extent contract expirations had affected mine operations. It was stated that the B. & M. had placed a large contract at \$2.40 but producers asserted this was below the cost of production. As a result of the slim demand most of the mines remained closed.

LOGAN AND THACKER

Larger production in the Logan region was deceiving as there was no real improvement in market conditions. Lake shipments were a trifle larger as one or two companies had picked up some of this business. Few contracts have yet been closed.

There was a gain in the output in the Thacker region, although "no market" losses were still in excess of 140,000 tons. A few contract renewals were noted during the week.

NORTHEASTERN KENTUCKY

Production is gradually increasing; 56,200 tons representing the week's output, or just about 27 per cent of potential capacity. This is probably due to a heavier movement to the Lakes although there was only a fair demand in evidence.

VIRGINIA

Conditions underwent little change during the week, production remaining at less than 50 per cent. There was virtually no spot demand although inquiries were more numerous and the outlook is improving daily.

LOW-VOLATILE FIELDS

New River Output Gains—Better Tide Demands—Conditions Show Encouraging Signs of Improvement.

NEW RIVER AND THE GULF

Growing production in the New River field during the week ended April 16 was an index to improved market conditions. The output averaged about 25,000 tons daily, with many mines resuming operation. The new business is not in the shape of contracts but is due to a better spot demand. The greater part of the increased production is going to Tidewater for bunkerage. Producers are now averse to selling on contract as all hands are sure of an early strengthening of the spot market.

Although there was no marked in-

crease in production in the Winding Gulf region, conditions were undergoing improvement. There was a better spot demand for Tidewater at prices ranging \$3.50@\$4. Producers are generally of the same opinion as New River operators in regard to the contract market.

POCAHONTAS AND TUG RIVER

Pocahontas mines were still limited to a fractional part of the week by a slim demand and production was much less than half of normal, although a larger stream of inquiries was a sign of awakening market activity. Some producers have closed contracts on a basis of \$350 although the improvement is rather of a spot nature.

The market outlook for Tug River mines is still very limited. Plenty of inquiries are coming in, although few orders are actually being placed. Tide-water shipments were somewhat heavier than usual but Lakes shipments were insignificant in volume.

Southern Appalachian

SOUTHEASTERN KENTUCKY

Spot Demand Unimproved—Operators Cut Prices to Secure Running Time.

The new coal year continues to drag along with nothing yet in sight that might be construed to mean an immediate renewal of operations upon anything like a reasonable amount of running time, or at a price that will permit operators to more than break even.

While the continued absence of orders may be taken to mean better prices in the latter part of the year, yet operators are making every effort to shave costs to a point where they can move enough coal to enable them to run one or two days per week. There has been no general effort to cut wages, but some of the smaller mines whose wage scale is more or less in line with the general tone of the market are not paying anything like the union scale for the field.

West

UTAH

Domestic Demand Increases—Steam Sizes Hard to Move—Industrial Conditions Unchanged.

Business appears to be picking up slightly and is reflected in better work-time at the mines. Consumers are apparently beginning to realize that there is no immediate possibility of a further price decline. However, the industrial situation has not improved.

With a better lump demand, some operators are in difficulty in the disposition of their slack, owing to the closing down of smelters. Mine prices are, lump \$5, mine run \$4 and slack \$2.75.

MINE And COMPANY NEWS

ALABAMA

A report from Gadsden announces that a Polish syndicate headed by Joseph Mierzyński, of Chicago, has purchased the holdings of the **Appalachian Coal & Iron Co.**, such properties including 12,000 acres of coal lands on Lookout Mountain, Etowah County. The same interests have also purchased large holdings of iron ore and are negotiating for other extensive mineral interests. It is stated that these interests plan immediate development of the properties which they have taken over.

ALASKA

Development of the coal and other resources of Alaska will be the object of the visit of President Harding and Secretary of Interior Fall to Alaska this summer, probably in August. The Interior Department has issued regulations governing the granting of coal prospecting permits in Alaska under the act passed by Congress last session, authorizing four-year permits of 2,560 acres each. Permits will be issued to prospect unclaimed, undeveloped areas where prospecting or exploratory work is necessary to determine the existence or workability of the coal deposits. The department has granted the following coal permits: **Seattle District**: Harvey V. Rohrer, 2,176 acres; Earl V. Martin, 3,410 acres; Thomas P. Appleton, 2,560 acres; John P. L. Tilton, 2,480 acres, and Charles L. Harrison, 2,560 acres. **Yakima District**: Ernest T. Barden, 640 acres. **Lander District**: James R. Heagy, 2,560 acres, and Chicago & Northwestern R.R., 2,560 acres. **Douglas District**: Joseph H. Sharpe, 2,000 acres.

COLORADO

According to reports, the mines of the **Victor-American Fuel Co.** at Pyrolite and Chandler are planning to start up shortly and continue in operation for several months at nearly full time.

ILLINOIS

A verdict of death from fire of undetermined origin was returned April 14 at a coroner's inquest into the **Kathleen mine** fire Feb. 23, when seven men lost their lives. Operations at the mine have been resumed.

A train carrying representatives of the coal consuming industries of Chicago and various suburban points and northern Indiana was recently operated over the Chicago & Alton under the personal direction of S. G. Lutz, vice-president and traffic manager of the railroad. An inspection was made of all coal mines along the C. & A. from Selbytown to Carlinville. A number of coal operators were included in the party. The plan was to give the large consumers a better idea of the part which the railroad plays in moving the coal to market.

In addition to the Star mine which was purchased by the **Lake & Export Coal Corporation**, as previously announced, two other mines in the vicinity of Freeburg, have also been purchased by the West Virginia concern. The mines are known as the West Belleville and the Highland mines and are located between Belleville and Freeburg. The Star mine has a vein of the unusual thickness in that district of twelve feet, while the other two mines range about nine feet. The transaction including the three mines and a consideration of \$1,500,000, was negotiated by Harris P. Wolfberg, formerly of St. Louis and now vice-president of the corporation.

The **E. J. Scott Coal Co.**, strip mine at Duquoin, is again making preparations to resume operations after being idle some time for repairs and general improvements. The **Boehmer Coal Co.**, at that place, has also resumed activities after being down for about two weeks with labor troubles.

The **Chicago, Wilmington & Franklin Coal Co.**, of Chicago, has broken ground for its new mine to be known as Orient No. 2 and is located adjoining the present Orient mine No. 1. The company now operates nine large mines in Illinois and is one of the foremost companies in the state. An expenditure of over \$2,000,000 will be made in the sinking and equipping of this new and modern colliery.

The Watson mine of the **Watson Coal Co.**, of Chicago, located in Williamson County, has been purchased by the **McElvain-Hoy Coal Co.**, also of Chicago. This property, with the Sincerity and Ward mines, will give the company a tonnage of 3,500 tons daily.

While operating only three days per week the mine of the **Franklin County Mining Co.**, at Benton, will undergo several improvements. A new rescreening plant will be built. A new and modern washhouse will also be constructed at this time.

J. P. Schneider, well-known coal man and connected with the Old Ben Coal Co., of Chicago, for several years, has opened up offices in Chicago under the name of the **J. P. Schneider Coal & Coke Co.**

INDIANA

Damages aggregating \$197,000 are asked of the **Rowland Power Consolidated Coalries Co.** of Terre Haute by Harry S. Frank, of Cleveland, Ohio, in a suit filed in Federal Court at Indianapolis. The complaint alleges that the plaintiff has been damaged to that amount by alleged breach of contract for the sale of bonds in the defendant company. It is charged that two contracts were entered into between the parties by which Frank was to have charge of the sale of a bond issue of \$600,000 for the defendant company. For this he was to receive \$23,500 when the bonds were sold and was to be given three promissory notes aggregating \$16,500, payable in from one to three years. In addition he was to be permitted to place the liability insurance on the property for such time as the bonds ran, he says. This, he claims, would have paid him a commission of about \$12,500 a year. He claims he fulfilled all his part of the contracts and that the defendant company has refused to pay him any part of the money due under the contracts.

The **Ft. Branch Coal Mining Co.** has filed suit in superior court, Indianapolis, asking a judgment of \$36,000 against the **J. R. Morris Coal Co.**, of Indianapolis, for breach of contract. The plaintiff says the defendant company failed to comply with its part of a contract for the purchase of a large quantity of coal from the plaintiff.

Buildings and mine machinery of the **Crawford Coal Mine No. 12**, northeast of Terre Haute, were destroyed by fire, April 4, with a loss estimated at \$1,400. The mine had been closed for several weeks and the day engineer was the only person at the mine when the fire started.

KENTUCKY

The **Banner-Elkhorn Coal Co.**, capital \$25,000, has been chartered by I. N. Hall, Burley Hall and Melvin Hall.

Work has been started on a coal byproduct plant five miles east of Somerset by the **Kentucky Coal & Electro Chemical Co.**, a New York syndicate, which owns a large coal acreage that it has been working for some time. A pike will be built from Somerset to the plant and the output will be hauled to the railroad in trucks.

The **Louisville & Nashville** has a surveying party at work running a survey from the end of the line on the right fork of Straight Creek, on up Straight Creek to a point about even with Baxter, which is located on this line in Harlan County, thence over Pine Mountain to an intersection point with the line extending from Pine-

ville up the Cumberland River to the Harlan coal fields. The conjecture is that the line will be extended up Straight Creek and coupled with the Harlan field by a tunnel through Pine Mountain at some point about even with the town of Harlan. Several large deals in coal lands are being closed on the strength of this survey. Such a line would save about 10 miles in going from Pineville to Harlan.

R. I. Cawthorn has sold his interest in the **Leyman-Calloway Coal Co.** to W. A. Watson, who was already largely interested in this mine.

J. J. Hume has purchased an interest in the **Wagner Coal Co.** and will become general manager of the company.

T. C. Hughes has purchased the mine of **R. L. Brown & Co.** in Harlan County, consideration reported to be around \$80,000. Mr. Hughes is reported to be working on an extensive consolidation of his mining interests.

Property loss to the extent of \$30,000 was done recently at the **Memphis Coal Co.**'s plant at Mannington. The fire destroyed a big warehouse and blacksmith shop.

Recent charter papers filed, including changes and increases in capital, are as follows: **Excelsior-Harlan Coal Co.**, Harlan, increased from \$50,000 to \$100,000; **Elkhorn Star Coal Co.**, Pikeville, increased from \$100,000 to \$125,000; **Commercial Coal Mining Co.**, Lexington, has been capitalized at \$60,000. J. Henry Hall, W. H. Hoover and W. H. Courtney are the incorporators.

MONTANA

The **Cottonwood Coal Co.** is understood to be extending its operations toward Belt, since the recent closing of the Lehigh mine and the reopening of the mines at Stockett. It is understood that options for coal rights have been taken on lands near Belt and Wayne. Drilling operations are to begin at an early date.

NEW JERSEY

The new 600-ton coal silo belonging to **George Weeks & Co.**, Newark coal dealers, burst recently, after being filled for the first time. It is expected that the manufacturing company will replace it at once.

NEW YORK

The **Bellmore Coal Co.**, of Bellmore, Long Island, has been incorporated with a capital of \$25,000. F. L. White and A. C. S. Dowd are named as incorporators.

OHIO

The **Chesapeake & Ohio R.R.** has increased its Lakes dock facilities, handling coal to Toledo, Sandusky and Lorain. Heretofore the company has handled coal only to two docks.

The former plant of the **Marmet Coal Co.** at Cincinnati has been leased for a ten-year period to the **Reliance Coal Co.**, with privilege of purchase at \$132,500.

The **Jeffers Coal Co.**, Bellaire, has been chartered with a capital of \$25,000 to mine and sell coal. Incorporators are A. D. Jeffers, H. A. Brown, S. J. Watterson, R. E. McKinain and J. C. Jeffers.

The **Western Fuel Co.**, of Columbus has about completed the installation of entire new equipment at its mine at Orbison. The equipment consists of a new tipple, power house and picking table as well as shaker screens. The work will be completed by May 1 according to Roy Brenholts of the company.

Retail demand has been so dull that the retail dealers board of the **Cleveland Chamber of Commerce** has adopted a "Buy Coal Early" slogan, and will conduct an adver-

tising campaign over a period of six weeks for the purpose of stimulating immediate purchasing and storage on the part of domestic and other consumers.

PENNSYLVANIA

The washery of the **Black Creek Coal Co.**, situated near Nanticoke, has been totally destroyed by fire, damage being estimated at more than \$50,000. The washery was a comparatively new operation, having been erected only two years ago. It has been operated recently by the **Heker-Jermyn Co.**

The **Sauers Coal Co.**, with mines at Mostollar, Somerset County, will resume operations May 1. The company has just let contracts for five new seven-room houses. The mine will be equipped with new machinery and will employ 150 men.

The **Hill Crest Coal Mining Co.**, at Stoyestown, Somerset County, is about ready to resume operations. The mines have been equipped with modern electrically propelled machines and contracts are being prepared for the erection of a number of houses.

The **Old Colony Coal Co.**, in Somerset County, has resumed operations since building a new tipple and installing new machinery.

The large tipple of the **Consolidated Coal Co.** at Althouse was burned by fire on April 3, entailing a loss of \$15,000. Valuable machinery was damaged. The tipple will be rebuilt.

Three men were killed and one injured in the Briggs Mines of the **Scranton Coal Co.** recently as a result of a powder explosion.

The **Center Coal Co.** of Butler is in the hands of a receiver. Figures filed in the United States Court show liabilities of \$47,265, and assets, \$30,455. The company was engaged in the mining and selling of coal.

UTAH

The Denver & Rio Grande R.R. has filed suit against the **Blue Seal Coal Co.** to recover \$3,439.86 said to be due on freight charges. The company recently opened a mine in the southern part of Utah and the

amount is alleged to be due for shipments on lumber and machinery for this mine. The plaintiff furnished a bond for \$4,000 for the issuance of a writ of attachment.

Utah's coal mining companies are to receive a refund of 25 per cent on the premiums paid into the State Insurance Fund under Workmen's Compensation Act during the fiscal year ended June 30, 1918. It was found that the premiums charged during the first year had been unnecessarily high.

WASHINGTON

The **Chinook Coal Co.**, operating on the Spokane Indian Reservation near Detillion bridge, under the management of H. J. Shepherd, of Spokane, has resumed work. The mine shaft has reached an incline depth of over 200 ft., cutting several veins of workable depth coal of good grade.

WEST VIRGINIA

A bill authorizing the **Borderland Coal Corp.** to build a bridge across the Tug Fork of the Big Sandy River in Mingo Co., W. Va., was introduced in the House by Rep. Langley of Kentucky.

Coal property on Dent's Run in Monongalia County has been purchased by R. H. Jarvis, John W. Parker, and L. M. Parker, all of Morgantown, from Charles Martin, there being 17 acres of Pittsburgh coal in the tract, the consideration being \$25,000.

Organization of the **Three States Coal Co.** has just been perfected through the election of F. A. Bender as president and of Frank T. Beazley as vice-president. Mr. Bender was formerly connected with the Wyatt Coal Sales Co., while Mr. Beazley was formerly with the Matlack Coal & Iron Co. The new concern is planning to engage in the general coal sales business, with offices in the Kelley-Moyle Building at Bluefield.

Development of coal territory in the vicinity of Orgas will follow the organization of the **Splint Orgas Coal Co.**, this company having a capital stock of \$20,000. Backing the new concern are: A. E. Moore, Walter R. Moore, Arlow C. Moore, James Kay and J. L. Mandt, all of Charles-

ton, D. C., Hyattsville, Md. and Washington, D. C., via B. & O. delivery.

The I. C. C. has authorized railroads to establish rates on coal briquettes from Richmond, Norfolk, Pinners Point, Va., and points paying the same rates to points in Virginia and the Carolinas, the same as rates on coal between these points.

The I. C. C. has decided that the proposed cancellation of joint rates on coal from mines on the **Minneapolis & St. Louis R.R.** in Illinois to destinations in Ohio and Michigan is not justified.

The B. & O. has filed application with the I. C. C. for authority to assume rental payments to the amount of \$675,000 under an equipment trust of June 1, 1920, between the New England Fuel and Transportation Co., the Bethlehem Steel Co., and the Bankers Trust Co., trustee, whereby it acquires 549 steel hopper cars.

In the complaint of the **Consolidated Coal Co.**, of St. Louis, an I. C. C. examiner recommends that the rate on fine coal from Mt. Olive and Staunton, Ill., to Kansas City, Mo., is not unreasonable.

The **Riverside Coal Co.**, of Cincinnati, in a complaint to the I. C. C., attacks as unreasonable the rates on coal from its mines at Three Mile, Ky., to Cincinnati and other destinations in central freight association and western trunk line territories.

The **Central New Jersey Coal Exchange, Inc.**, of Elizabeth, N. J., attacks unreasonable rates on anthracite coal from points in Pennsylvania to New Jersey.

The **Walrath and Sherwood Lumber Co.**, of Omaha, in a complaint to the commission alleges unreasonable rates on coke and hard coal from points in Wisconsin, Missouri, Ohio and Alabama to points in Nebraska.

The **War Department** will again advertise for the sale of ten wooden coal barges on the New York State barge canal system, recent bids for the sale of which were unsatisfactory. The barges are of the type used on the Chesapeake & Ohio Canal.

Recent figures compiled by the **Bureau of Railway Economics** at Washington show that the freight rate on one ton of coal from Belleville, Ill., was 65c. on Jan. 1, 1917, and was \$1.29 $\frac{1}{2}$ on Jan. 1, 1921, for a 25-mile haul. This would show practically a 50 per cent increase in that given period. The increase on every other commodity is far below the increase on coal.

The **Canyon Coal Co.** has secured a large acreage of Pittsburgh coal on Cheat River. There are 230 acres in the tract purchased. The company, however, purchased only a half interest in the tract, the consideration for such half interest being \$32,124.50.

The legislature of West Virginia has passed the **State Police Bill**, increasing the size of the force of state police and in fact almost doubling it. Coal people of the state were very much committed to the bill, as the present force has proved inadequate to cope with industrial trouble. The bill was bitterly opposed by the labor element in the legislature but secured comfortable majorities in each House.

Authority has been granted to the **Tioga Coal Co.** to increase its capital stock from \$25,000 to \$100,000. Another company, however, the **Smokeless Fuel Co.** of Charleston, has reduced its capital stock from \$1,000,000 to \$400,000.

Charleston capitalists have launched the **Kanawha Pocahontas Coal Co.** with a view to engaging in mining operations in the Kanawha region. This company has a capitalization of \$50,000.

In connection with numerous other improvements being made at the plants of the **Forest Coal Co.** and of the **Diamond Coal Co.**, both of which have mines on Scott's Run in the Monongalia field, bar screens and other equipment are being installed by both of these companies.

A. R. Hamilton & Co., of Pittsburgh, who have had branch offices in Clarksburg and Fairmont, have closed such offices for the time being at least because of poor market conditions.

Mining machinery will be manufactured by the **American Coal Loading Machine Corporation** of Huntington, which has just been organized with a capitalization of \$225,000.

WYOMING

Poposa coal mine No. 1 will be operated about four days each week, for the present. No. 2 mine has been closed for the season and the men are seeking other locations. During the shutdown some changes and repairs will be made to the tipple.

Lumber increased from \$6.65 to \$11.20. The increase on gravel is from 62c. to \$1.10 per ton. These commodities are those that are loaded in coal cars.

The Lexington Board of Commerce has taken up with the State Railroad Commission, rates on coal from eastern Kentucky mines to Lexington, which are declared to be higher than to Louisville or Cincinnati.

A public hearing was given on the realignment of rates on coke from Pittsburgh, Youngstown, Cleveland, Canton and Dover, Ohio, to Central Freight Association Territory. The meeting was held at Room 2527, Henry W. Oliver Bldg., Pittsburgh, April 21, 10 a.m.

In the complaint of the **Electric Coal Co.** the I. C. C. decides that the rates on bituminous during Federal control from Bronson to Chicago, Milford and Jamaica, Ill., as components of through rates from Missionfield, made by combination on Bronson were not unreasonable from Chicago to Milford but were unreasonable to Jamaica. The commission says the joint rate from Missionfield to Milford was unreasonable but does not pass on the separate rate of the electric line from Missionfield to Bronson as that road was not under Federal control.

In a complaint to the commission **A. H. Traphagen and others**, of Waterloo, N. Y., attack as unreasonable the rates on anthracite coal since Nov. 5, 1920, from the Pennsylvania anthracite regions to Waterloo and Seneca Falls, N. Y.

In the complaint of the **Farmers Fuel Co.** the commission decides that the rates on coal from junctions with the Higginsville (Mo.) Switch Co. to destinations in Missouri and Kansas are not unreasonable, and denies a request for joint rates. The commission holds that the switch company is not a common carrier subject to the commerce act.

In the complaint of the **Central Illinois Light Co.** the commission has authorized the Illinois Coal Traffic Bureau to intervene in the case which relates to rates on coal from Virden, Girard, Springfield and Bissell, Ill., to Peoria. Similar action has been taken in the complaint of **W. L. Carney** involving rates on coal from mines in Illinois and Indiana to Chicago and the **Sharon Coal Co.**'s complaint involving rates on coal from mines in Illinois to Peoria. Similar action has also been taken in the **Corona Coal Co.** complaint involving coal rates from the Warrior coal field of Alabama to Louisiana destinations.

Traffic News

Recent hearings before the I. C. C. affecting southeastern Kentucky operators include the request of the L. & N. for permission to raise rates on all grades of coal from the field to Louisville from \$1.56 $\frac{1}{2}$ on slack, \$1.69 on mine run, and \$1.81 on block to a flat rate of \$1.90 for all grades. This increase is being stubbornly contested by the operators for it would be disastrous on steam grades, which must be sold in competition with western Kentucky coals. An adjustment has also been made on the recent increase in rates on coal coming from the Cumberland & Manchester R.R. and the rates now stand at the tariff rate from Barbourville, Ky., plus 10c. from Groups 1 and 2 and 15c. on Group 3.

The **U. S. Brick Co.** and others of Tell City, Ind., complain against unreasonable rates on bituminous coal from Indiana mines to Tell City.

A disposition to keep down coal rates is manifest by recent action of the I. C. C. in denying the application of railroads to increase by 20c. a ton the joint rates on coal from mines on the Cumberland R.R. to points on the L. & N. and connections in Tennessee, Virginia, the Carolinas, Georgia, Florida and Alabama. The commission holds that the proposed increase is not justified and orders the schedules carrying the increases, which were recently suspended pending investigation, canceled.

In the case of the **Citizens Coal Mining Co.** an examiner of the I. C. C. recommends that the rates on soft coal from its mines to Springfield, Ill., were unreasonable.

In the complaint of the **Barnett Lumber Co.** an I. C. C. examiner recommends that the rate of \$2 per ton applicable to the intrastate transportation of bituminous coal from Fort Branch to Frankton, Ind., in 1918 was unreasonable because it exceeded \$1.32 per ton subsequently established.

In the complaint of the **Washington Steel and Ordnance Co.** an examiner recommends that the rates on bituminous coal from New River district group No. 1 of West Virginia to Uniontown (Anacostia) D. C., is unreasonable because it exceeds the joint through rate from the same points to Ben-

Personals

R. B. Isner, general sales manager of the Boone County Coal Corporation, is just recovering from an operation in which his tonsils were removed. Mr. Isner's headquarters are at Sharples, W. Va.

W. M. Wylie, general manager of the Boone County Coal Corporation, left a short time ago for a trip to Colorado, where he was formerly located.

J. G. Bradley, president of the West Virginia Coal Association, was in Boston about the middle of the month on business.

W. D. Orr, president of the Red Jacket Consolidated Coal & Coke Co., with headquarters at Landgraf, W. Va., was in Charleston on April 19.

C. H. Jenkins, treasurer of the Hutchinson Coal Co., with headquarters at Fairmont, was a recent visitor in Cleveland, where he attended a traffic meeting.

A. R. Yarborough, traffic manager of the Kanawha Operators' Association, was a visitor in Cincinnati during the second week of April.

A recent visitor in the Columbus, Detroit and Toledo markets was **Thomas W. Arnett**, president of the Antler Coal Co. of Fairmont.

Charles F. Sutherland, president of the Sutherland Coal Co. of Morgantown, has been elected as mayor of Morgantown, W. Va. Mr. Sutherland, although a Republican, was nominated on the Democratic city ticket and defeated his opponent by more than a three to one majority.

John W. Meyer, well-known mining man in southern Illinois, has resigned his position with the Aladdin Coal Co., at Cutler, to accept a similar one with the Equitable Coal & Coke Co., operating at Johnston City and Duquoin.

W. T. McElroy, Cincinnati manager for the M. A. Hanna Co., who has been ill with pneumonia at the Hotel Gibson for some weeks, has returned to his office. His health has been so impaired, however, that he has decided to go away for a rest.

M. F. McDermott of the Tuttle Coal Corporation, who underwent an operation for appendicitis, has recovered. It will be some time, however, before he will be able to return to his duties.

J. P. Small, manager of the Harold Coal & Coke Co., of Harold, Ky., was in Cincinnati recently, as was **M. K. Marlow** of the Elkhorn-Jellico Co. of Whitesburg.

William Quinn, who was formerly with the Winifred Coal Co. and other concerns in Cincinnati, but now the leading spirit in the General Coal Co. of Huntington, W. Va., spent a couple of days in Cincinnati recently.

E. E. Haller, president of the Indiana Coal Dealers' Association, and Secretary Yeagley, motored to Cincinnati recently with a special invitation to the trade to come in a body to the annual meeting of their organization.

Harry Phister of the Hager Coal Co. has left for Detroit where that concern recently opened an office in the Dime Bank Building under the direction of **W. S. Van Houten, Jr.**

Victor White, western manager for the Flat Top Fuel Co. of Bluefield, W. Va., whose headquarters are in Cincinnati, was away for a week's business trip to Chicago and other western points.

Robert S. Magee, manager of the South-eastern Coal Co. has been forced to go to an Indiana health resort. He is suffering from rheumatism.

R. H. Boykin recently was appointed manager of the Cincinnati branch of the Ft. Dearborn Coal Co. Mr. Boykin previously was in the New York trade. He succeeds **Roy Monarch** who recently went into business for himself.

Abel Mishler, who is well known to the New York coal trade, has joined the forces of the McCann-Camp Coal Co., at No. 90 West Street. He has been appointed manager of sales.

T. K. Maher, president of the Maher Collieries Co., Cleveland, was named by the National Coal Association as a delegate to the Ninth Annual Convention of the U. S. Chamber of Commerce, to be held in Atlantic City April 27-29.

W. R. Woodford, president of the Rail & River Coal Co., Cleveland, has been named by the Pittsburgh Vein Operators' Association of Ohio as a delegate to the Ninth Annual Convention of the U. S. Chamber of Commerce, to be held in Atlantic City April 27-29.

W. H. Groverman, secretary of the Northwestern Coal Dock Operators' Association made a short trip east recently.

J. R. Blackburn, who has been associated with W. H. Bradford & Co., Philadelphia, for some time, has been made general superintendent in charge of the operations of the Victor Coal Mining Co. and the Clarion Coal Mining Co.

Everett Drennen, of Elkins, president of the West Virginia Coal & Coke Co., was a business visitor in Charleston during the second week of April.

Association Activities

Northern West Virginia Coal Operators' Association

Directors of the association at a meeting held in Fairmont, launched a movement to have the transportation act so amended that hereafter it would not be possible to restore the assigned car order in connection with the loading of railroad fuel.

The assigned car question was the principal topic under discussion at the meeting and it was considered of so much importance that the directors selected a new committee to specially handle this question, consisting of: C. D. Robinson, Fairmont, chairman; J. M. Orr, Clarksburg; C. H. Jenkins, Fairmont; J. V. Gibson, Kingwood; Daniel Howard, Clarksburg.

The position taken by the directors is that it is entirely within the power of the commerce commission to again make effective the assigned car order whenever it is so desired on the ground that an emergency exists. In order, therefore, to prevent any revival of the assigned car practice, it is proposed to have West Virginia Senators ask for an amendment to the transaction act. Should it be possible to have the act so amended, it would not then be necessary to await a decision from the Supreme Court on the assigned car question.

The directors also heard a report on recent conferences having to do with an adjustment of Lake freight rates. C. H. Jenkins, who attended the Cleveland conference and also conferred recently with President Willard of the B. & O. presented a report, stating that while the situation appeared to be favorable, yet there was nothing definite to indicate whether Lakes coal-carrying rates would be reduced or not. According to a report made to the meeting Ohio operators are seeking to offset the work of the western Pennsylvania and West Virginia operators by asking the I. C. C. to increase the rates from the states named.

Utah-Idaho Retail Coal Merchants' Association

The fourth annual meeting and banquet of the association was held at the Commercial Club, Salt Lake City, on April 7. L. H. Raines, president of the Carbon Fuel Co., discussed the present coal problems from the operators' standpoint. He could see no hope for lower prices, as wages could not come down yet as most of the mines averaged less than two days' work a week. He thought the railroad situation serious.

H. E. Smith, a Murray (Utah) dealer, lead the discussion in the matter of unfair competition from farmers' equity societies and others who are not regular coal dealers, and it was decided that the producers be asked to form an association so that the retailers could go to that association with their troubles instead of going to individuals.

H. F. Fernstrom, manager Bamberger Coal Co., suggested that a summer price for coal would cause people to stock up, whereas he felt they would otherwise defer this until fall and cause a congestion. He thought producer, railroad and dealer might all work on a lower margin temporarily.

L. H. Fernstrom was elected president for the ensuing year and S. L. Billings secretary, with a strong committee.

Industrial News

New York, N. Y.—The International Pulverized Fuel Corporation is now located in the National City Building, 17 East 42nd Street.

New York, N. Y.—General offices of The Franklin Railway Supply Co., Inc. are now located in the National City Building, 17 East 42nd Street.

New York, N. Y.—The Consolidated Steel Corp. announces its new location in the

Cunard Building, 25 Broadway. Telephone, Bowline Green 3000.

New York, N. Y.—The Air Reduction Sales Co. has secured control of the National Carbide Corp. of Virginia and will direct the policy and control the operation and sales of the latter corporation.

New York, N. Y.—The Superheater Company will move its offices on May 1 from 30 Church St. to 17 East 42nd St.

New York, N. Y.—The Slattery Coal Co., W. H. Griffiths, sales agent, has removed its offices from the sixth floor of 143 Liberty St. to the second floor of the same building, giving increased space and facilities for a growing business.

Norfolk, Va.—Inglesby, Patterson & Co. has taken the agency for the Coalfield Corporations products in Hampton Roads.

Philadelphia, Pa.—The Majestic Coal Co. Inc. of New York has opened a Philadelphia office at 531 Land Title Building in charge of Robert F. Campbell. Telephone: Spruce 5709. On May 1 the head office of the company will move to larger quarters on the 19th floor of the Equitable Building, New York City.

Pittsburgh, Pa.—Murray Pump & Valve Mfg. Co., wood pumps and line valves, has appointed T. H. Edelblute Co., of the Wabash Bldg., Pittsburgh, Pa. as eastern sales agents.

Coming Meetings

Due to the impossibility of securing hotel accommodations for the annual meeting of the Kentucky Retail Coal Dealers Association, at Lexington, April 27, Secretary J. Crow Taylor, advises that the meeting has been postponed until May 11 and 12.

Mine Inspectors' Institute of America will hold its twelfth annual meeting at Charleston, W. Va., July 12 to 15. Secretary J. W. Paul, Bureau of Mines, Pittsburgh, Pa.

Illinois and Wisconsin Coal Dealers' Association will meet at Chicago, Ill., July 13 and 14.

Missouri State Retail Coal Merchants Association will hold its annual meeting at the Planters Hotel, St. Louis, Mo., May 24 and 25. Commissioner E. J. Wallace, Pierce Bldg., St. Louis, Mo.

American Society for Testing Materials will hold its annual meeting at the New Monterey Hotel, Asbury Park, N. J., June 20 to 24. Secretary, C. L. Warwick, 1315 Spruce St., Philadelphia, Pa.

Indiana Retail Coal Merchants Association will hold its convention at Indianapolis, Ind., May 4, 5 and 6. Secretary, R. R. Yeagley, Indianapolis, Ind.

American Institute of Chemical Engineers will hold its spring meeting June 20 to 24 at Detroit, Mich. Secretary, Dr. J. C. Olsen, Polytechnic Institute, Brooklyn, N. Y.

The American Wholesale Coal Association will hold its annual convention in Washington, D. C., June 7 and 8. Secretary, G. H. Cushing, Woodward Bldg., Washington, D. C.

The International Railway Fuel Association will hold its thirteenth annual meeting at the Hotel Sherman, Chicago, Ill., May 24, 25 and 26. Secretary, J. G. Crawford, Chicago, Ill.

The National Coal Association will hold its next annual convention at the Waldorf Astoria Hotel, New York City, May 19 and 20. White Sulphur Springs hotel reservations have been cancelled. Secretary, W. B. Reed, Commercial National Bank Bldg., Washington, D. C.

The American Society of Mechanical Engineers will hold its spring meeting May 23, 24, 25 and 26 at the Congress Hotel, Chicago, Ill. Secretary, Calvin W. Rice, 29 West 39th St., New York City.

National Retail Coal Merchants Association will hold its annual meeting May 12, 13 and 14 at the Jefferson Hotel, Richmond, Va. Special rates on all railroads. Secretary, E. G. Gordon, Philadelphia, Pa.

The National Foreign Trade Council will hold its eighth annual convention May 4, 5, 6 and 7 at Cleveland, Ohio. Secretary, J. G. Hammond, 409 Park Bldg., Cleveland, Ohio.

Illinois Mining Institute will hold its spring outing the early part of June on the Mississippi and Illinois Rivers, the boat leaving St. Louis for Peoria on June 3 and returning on June 5. Secretary, Martin Bolt, Springfield, Ill.

The American Mining Congress and National Exposition of Mines and Mining Equipment. The 24th annual convention on Oct. 17 to 22 at the Coliseum, Chicago, Ill. Assistant secretary, John T. Burns, Congress Hotel, Chicago, Ill.